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**Subject: talk.to/reflect - reflection and practice
in nurses' computer-mediated communications**

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A Thesis submitted in conformity with the requirements
for the Degree of Doctor of Philosophy in
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in the disciplines of
nursing informatics and educational technology

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Abstract

This study is situated within the everyday practice of nurses around the world, engaged in discourse with colleagues through listserv discussion forums, and immersed in Schön's swampy lowlands of important problems. Taking computer-mediated communications (CMC) to be an integral part of nursing informatics, the study begins by examining the literatures on CMC and nurses' reflection on and in practice.

The study is congruent with emerging mixed method research approaches within both nursing and the study of CMC, and comprises an electronic ethnography, coupled with the development of a model of reflection within nursing listserv discussions. Using a corpus of discussion threads from the NURSENET list, together with questionnaires, interviews and Virtual Focus Group discussions, all conducted by CMC over a six-year period, a tapestry of a virtual community, united through discussion of shared practice issues, emerges. The narratives of everyday discussions dispel some of the urban myths of CMC and show the possibility of real social engagement.

A model of reflection derived from Kim's phases of critical reflective inquiry and Johns' framework for reflection on action is used to examine a pilot sample of NURSENET discussion threads. This pilot version of the model is shown to be insufficient to describe the reality of reflective discussion in this forum, and a revised model is developed, essentially inductively, from the data. This new model, tested against a larger sample of discussion threads, demonstrates a qualitatively different form of reflection from that encountered offline. The online reflection is a group, as opposed to an individual, process, is action-oriented, and shows a form of 'online reflection around action' as nurses engage in ongoing practice situations, as well as *post hoc* reflection-on-action. It also provides evidence of nurses using the reflective discussions to change practice, and so illustrates reflection akin to that envisaged by Kemmis.

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resistance is futile – finish the dissertation!

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Judy Norris - for making it all happen in the first place

and

Barbara Tracy - for showing what can be done with “plain old text”

- and for all the members of the NURSENET family,
past and present - and future

...based on a dialogue with nurses and nursing,...[the situations] emerge from the imperfections and contingencies with which nurses work daily. Benner (1984)

Nurses share stories among themselves and, in the late-night-early-morning-all-day conversations, are spun the myths and fables, those fantasies and fictions which slowly accrue to become a culture's common sense and folklore, its theories and knowledge. Walker (1995)

Chapter 1

Thrashing around in the swampy lowlands

Shall he remain on the high ground where he can solve relatively unimportant problems according to his standards of rigor, or shall he descend to the swamp of important problems and non-rigorous inquiry? Schön (1992/84)

1.1 Once upon a time: an introductory

...I am well aware that I have never written anything but fictions. I do not mean to say, however, that truth is therefore absent. Foucault (1977)

What you are about to read is a story; a story that, at its simplest, tells of what has been done, how it was done and the significance of what has been done. As anyone with even a passing acquaintance with literary theory will be aware, the best stories, or fictions, are often grounded solidly in fact. In this respect, as Foucault says, the story, or fiction, told here, does not display the absence of truth. It is grounded in the facts of the everyday reality of many nurses as they engage in ~~computer-mediated~~ ^{reflective practice} discussions with their colleagues around the world.

The story told here weaves together two major strands, the emerging orthodoxy of reflective practice, and the current reality and future potential of the use of electronic communications by many nurses, primarily in industrialised countries. It is story that emerges from what I regard as an important set of issues that are not readily amenable to forms of inquiry based in positivist methods. It is also a story of a research process and study that shows how many nurses are using the potential of computer-mediated communications (CMC) and, as Walker (1995, p.88) describes, are able “to ‘tell nursing like it is’ by appropriating narratives of everyday life in clinical practice.” In this respect, the study is essentially ethnographic, exploring, as Maggs-Rapport (2000), describes,

nurses' routine and everyday lives, albeit routines that involve electronic interaction with colleagues spread around the globe. As described by Paccagnella (1997) and Schrum (1995), the study is an electronic ethnography, exploring a virtual community, and has similarities in the types of data collected to other electronic ethnographies, for example that described by Correll (1995).

Based in my own experience of over eight years' participation in nurses' electronic discussions, I conclude that asynchronous, text-based CMC, through informal mechanisms such as listserv¹ discussions, has the potential to meet nurses' needs for lifelong learning in the context of the professional aspects of their lives. CMC can facilitate, among many things, an exchange of diverse views among nurses, with consequent influences on practice and the nature of nursing knowledge (Murray, 1997d). While it would be naïve to suggest that CMC could, at present, or even in the near future, fully address all of these areas, or provide equivalents for every form of off-line professional education, such asynchronous communications can overcome many of the problems associated with time and access.

The data presented in this story and their analysis ^{the use of} ~~will demonstrate that~~ ^{computer-distributed} informal ~~listserv~~ ^{discussions}, through enabling reflective exchanges⁸, ~~provide~~ ^{create} one mechanism whereby nurses can utilise knowledge gained (Warmuth, 1987), and do so in a manner pertinent to, and proximate to, the practice issues that they see as important. I do not suggest that informal discussion areas, such as ^{emails} ~~listservs~~, are the only mechanism for this. They are,

¹ The term 'listserv' is used throughout this thesis to mean a computer-distributed mailing list, facilitating the automatic distribution of email messages to all subscribers. Unless qualified, it refers to all such lists, which are distributed using a variety of software tools. It does not refer solely to lists distributed using LISTSERV®, a trademarked package (<http://www.lsoft.com/>).

though, a new and, certainly in the context of nursing, relatively unexplored mechanism that shows great potential and adds to the nurse's armoury when seeking to challenge and change practice that they may see as less than ideal or desirable.

Much of what nurses learn, and apply to improve their practice, is not achieved through formal educational provision, but occurs informally, or even serendipitously, and may never be rewarded by formal academic recognition. Regulations differ around the world as to what evidence of practice or learning nurses must provide to meet statutory re-registration requirements. Some states in the USA have no requirement for continuing education, and regulations differ between Canadian provinces. The United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UKCC) requires nurses to keep a portfolio demonstrating that they have undertaken five days study or equivalent in a three-year period (UKCC, 1995, 2001). The fact that the UKCC has not been restrictive in the criteria that nurses must meet to fulfil their Post-Registration Education and Practice (PREP) requirements may allow for acknowledgement and recording of much of the informal learning they undertake. It may even allow for the exploration of new and interesting ways of learning, such as through online reflective discussion.

Some might argue that nurses learn more outside formal education structures than within: from reading books and journals, discussions with colleagues, in the formal settings of conferences and seminars, and through reflection on and critical discussion of practice. Many of these off-line forms of learning already have on-line equivalents, and others are becoming increasingly available. We have growing numbers of electronic nursing journals, some of which are purely on-line (e.g., the Online Journal of Nursing Informatics – <http://www.hhdev.psu.edu/nurs/ojni/index.htm>), while others are on-line versions of paper-based journals (e.g., Nursing Standard Online – <http://www.nursing->

standard.co.uk). Virtual conferences and seminars are increasing in number, and will allow far greater numbers of nurses to participate than might be possible for their off-line equivalents. We also see, in the various nursing discussion lists, many nurses exploring issues arising from their practice, and seeking advice and information from their colleagues as to ways in which they might improve that practice. This study examines these areas in detail in respect of one forum, the NURSENET list

These aspects of CMC form one of the major strands of this study, the second being reflective practice. The widespread adoption of reflection as a component of nurse education, and an expected component of the practice of all nurses, at least within the UK, lead me to consider the potential of CMC to mediate such reflection and bring together the two strands.

Many nurses and nurse ^{mentors} teachers who, as part of their professional development and lifelong learning processes, are engaged in using or promoting the use of reflection, will have at least a passing familiarity with the work of Schön (1983, 1992/84). They are also likely to have encountered, by virtue of its frequent citation in the nursing literature, his famous analogy of the swampy lowlands and high, hard ground, in discussing the importance to practitioners of problem solving approaches. I use here the whole paragraph, as Schön seems to describe the problems of researching real-life nursing practice, whether in physical or virtual spaces, and the stages that I have gone through in developing this story. Schön (1992/1984, p.54) said:

In the varied topography of professional practice, there is a high, hard ground which overlooks a swamp. On the high ground, manageable problems lend themselves to solution through the use of research-based theory and technique. In the swampy lowlands, problems are messy and confusing and incapable of technical solution. The irony of this situation is that the problems of the high ground tend to be relatively unimportant to individuals or to society at large, however great their technical interest may be, while in the swamp lie the problems

of greatest human concern. The practitioner is confronted with a choice. Shall he remain on the high ground where he can solve relatively unimportant problems according to his standards of rigor, or shall he descend to the swamp of important problems and non-rigorous inquiry?

From the 1950's onwards in the USA, and more^R/recently within the UK, the prevalent view within nursing research has been framed within positivist science. The attitude has been that nursing can be advanced through approaching nursing issues as if they formed part of Schön's high ground, and were amenable to technical solutions that could then be generalized across nursing. Many nurses, and nurse researchers, are now realising that this is not the case. While some issues may be amenable to positivist research methods, many nursing issues, and often the more interesting ones dealing with the reality of nurses' everyday practice and interactions with patients and other professionals, are not so amenable (e.g., Maggs-Rapport, 2000; Marks-Maran and Rose, 1997; Rolfe, 2000). ✓

As a result, nurses are examining other research methods and approaches, and other philosophical bases for their research. Many are turning to naturalistic approaches, often involving qualitative methods, including the use of ethnographic and similar methods to explore practice settings and communities, or are developing their own mixed methods. The views of some of these nurses are presented in Chapter 4, providing support for the approach I have adopted, and demonstrating that what I have undertaken within this study is not based in fictional fantasies, with no support in the real world. Other voices within nursing are singing similar tunes, and while they may not all, due to different interpretations of the philosophical bases, be singing from the same hymn sheet, they are perhaps beginning to form a chorus whose sound cannot be ignored.

1.2 Background: an overview

This study grew out of my own daily use of CMC. In particular, it emerged from my use of email² to communicate with colleagues around the world, my participation in nursing-related Internet discussion lists, and my growing use of the World Wide Web (Web), including the ongoing development of my own Web sites. In many ways, it developed from issues raised at the end of my MSc study, which examined other aspects of nurses' use of the NURSENET discussion list (Murray, 1995b; 1996). These included the nature of CMC, the reasons why nurses might use it, and the information and professional development needs of nurses not only within the UK but also in many other parts of the world. This study is situated at the interface of two disciplines, i.e., educational technology and nursing informatics, and the following short sections briefly outline these areas.

1.2.1 Educational technology

While the term educational technology covers many more issues than the use of information and communication technologies (ICT) for the development and delivery of education, it is within such use of technology that this study is situated. In recent years there has been increasing use of computers and of communications media within education in all disciplines and domains and at all academic levels. There has been a movement within classroom teaching, and within the various models of distance education (including the videoconferencing, correspondence and mixed media models; Daniel, 1997) to incorporate various aspects of computer use. Many educators are now examining ways of delivering educational materials over electronic networks, including

² The form email, as opposed to e-mail, is used except where direct citation includes the latter (Hale, 1996).

the Internet and Web (Horton, 2000). They are also exploring ways of increasing learner engagement and interaction, rather than learners being passive consumers of whatever content is delivered (e.g., Collis, 1996; Eisenstadt and Vincent, 1998; McCormack and Jones, 1998).

Much of this development has been within formal educational structures and courses, as has most of the research. Informal, learner-centred and learner-driven education, and the meeting of self-perceived needs for information and education have been relatively unexplored, and it is these aspects of educational technology in particular that this study explores. Andrusyszyn (1996), a nurse educator, has said that in computer-mediated learning environments, “deliberately planned reflective design strategies [are] virtually unexplored.” (p.2) This seems to be still the case, and to apply more so to the exploration of reflection within unplanned or informal learning opportunities.

1.2.2 Nursing informatics

This study is not the place for a detailed exposition of the nature of nursing informatics. However, a short description will demonstrate the situation of this study within modern definitions of the domain.

The term nursing informatics is barely 20 years old, and despite the claims of various US scholars to its origin, the first recorded use of the term was by a British nurse, Maureen Scholes. At the 3rd World Congress on Medical Informatics, in Japan in 1980, she described nursing informatics as

...the application of computer technology to all fields of nursing: nursing service, nurse education, and nursing research.

(Scholes, Tallberg and Pluyter-Wenting, 2000, p.7)

While we have recently seen an increasing literature describing and defining nursing informatics (e.g., Goossen, 1996; Turley, 1996, 2000), one of the most frequently cited definitions of nursing informatics is still that provided by Graves and Corcoran (1989). They describe nursing informatics as the management and processing of nursing data, information and knowledge to facilitate the delivery of health care, through a combination of nursing science, information science and computer science.

The definition within which this study is situated is that of the Special Interest Group on Nursing Informatics of the International Medical Informatics Association (IMIA-NI), agreed at their General Assembly in Seoul, South Korea, in 1998. IMIA-NI define nursing informatics as

...the integration of nursing, its information, and information management with information processing and communication technology, to support the health of people world-wide. (IMIA-NI, 1998)

It is clear from this definition that the use of communications technology, and not just the use of computers, is integral to all aspects of nursing informatics. Studies into nurses' use of all forms of communications technologies, including the use of text-based electronic discussions mediated by computers and communications technologies, are nursing informatics studies.

1.3 Research questions and methods: an overview

1.3.1 Frameworks and approaches

This study is based in a variety of methodological approaches, as described by Maggs-Rapport (2000) and discussed in Chapter 4. It is, in essence, an electronic ethnography, of the type described best by Schrum (1995), and discussed by others in the field of

CMC, including Baym (1995), Herring (1996b) and Paccagnella (1997). These aspects will also be addressed in detail in Chapter 4. While the work cannot claim to be a postmodern or post-structuralist study, this philosophical base has had some influence on the study and on the selection of frameworks used.

At this point, I will briefly outline two aspects of the framing of the study, one relating to the analytic methods, and one relating to the attitude to reflection that I have adopted.

My MSc study (Murray, 1995b) used a “three-dimensional conception of discourse” (Fairclough, 1992, p.72) as the basis for a detailed analysis of a corpus of messages from the NURSENET list. This present study does not use Fairclough’s approach in such detail, but nevertheless is still congruent with his methods in bringing together aspects of his three dimensions. These three dimensions are textual and conversational analysis, “macro” level sociological analysis of the broad social practice, and a “micro” level analysis of discursive practice. Fairclough’s approach to discourse and its analysis derives largely from Foucault’s (1972, 1981) analyses of discourse. Fairclough (1992) sees discursive practices as being inseparable from the social practices within which they exist, thus it is necessary to examine not simply the text of the discourse, but also the social practice. Within this framework, the study provides an analysis of the content and context of a corpus of messages, examines aspects of the social context (through addressing the issue of online communities), and briefly considers the wider context of such online discussions within the broader practice of nursing.

Parker (1992) also proposes a framework for discourse and its analysis that, while having significant differences from that of Fairclough, nevertheless also has many congruencies

with his work and is used as part of the framework for this study. Parker outlines four stages to any study of discourse and its report:

- Introduction - positioning the study relative to works in the substantive area, drawn from a traditional literature search; the types of text and the research questions/issues are discussed to provide context;
- Methodology - detail is given of the specific texts analysed, why they were chosen, and how they were selected/collected;
- Data - coding of the data under discourse headings - there is no set way of doing such analyses; Parker states that it is inevitable that some degree of intuition must be used; and
- Analyses - linked to other materials as relevant.

The study is situated within the context of nurses' reflective practice. Chapter 3 contains a detailed examination of the nursing literature dealing with reflection and reflective practice that is most pertinent to the issues. I have adopted a stance in respect of reflection that closely matches Kemmis' (1985) views. He sees reflection as "a political act" (Kemmis, 1985, p.140) and outlines seven points about reflection and its study.

These points seem to capture the essence of reflection and form the basis of one of the study questions. Kemmis' work has certain similarities to that of Fairclough, in addressing the necessity of considering social context and ideology, and the two complement each other sufficiently well to provide parts of the theoretical basis for this study.

Kemmis' work is briefly cited by several nursing writers, and his critical theory approach to the necessity of reflection as action rather than introspection is echoed by many nursing authors. However, it does not seem to have been explicitly explored in the study of nursing's development of reflective practice. Kemmis' (1985) seven points are that:

1. Reflection is not a purely internal, introspective process; it is action-oriented and historically embedded.

2. Reflection is not only an individual process but is like language, a social process.
3. Reflection is a political process, serving human interests.
4. Reflection is shaped by and shapes ideology.
5. Reflection expresses our ability to reconstitute social life as a result of communication and participation in social action.
6. Research methods must take account of these aspects of reflection. The double dialectic of thought and action, the individual and society, is an integral part of the study of reflection.
7. Research to improve reflection must be conducted through self-reflection and engage individuals and groups in collaborative and emancipatory action research.

The ways in which the online reflection demonstrated within this study meet these points are discussed in Chapter 7.

1.3.2 Developing the questions

In any study it is not possible to ask all the questions that may, with the benefit of hindsight, occur to the researcher or the reader. As is the nature of much research within naturalistic paradigms, the continual interaction of the researcher and the participants with the data and their analysis, coupled with ongoing attention to the emerging literature in the field, inevitably result in other questions emerging. Often the researcher must, with reluctance, put these new issues to one side. This is especially so in respect of research, such as this study, conducted and recorded over a lengthy period of time.

In this section, I briefly outline the central questions addressed in the study, as they emerged over time. This provides a framework within which to understand the pertinence of the materials presented, particularly the issues selected for discussion in the two chapters dealing with the background literature. The questions are themselves considered

in more depth in Chapter 4, through an explanation of how the various data collected and the analytic methods employed were brought together to address the questions.

One of the central questions in which this study is based was asked at the end of my MSc dissertation: what impact and influence does CMC have on the off-line practice of nursing? This very broad question can be addressed in many ways, and contains the seeds of many diverse areas of inquiry. Starting from this question, and due to my background in distance and online education, I began by considering the possibilities of listservs as a vehicle for meeting the lifelong learning needs of nurses, in an informal manner, rather than in structured and formal courses. Work has already been undertaken on using listservs as components of formal, structured courses, particularly outside nursing, and brief examples are discussed in Chapter 2.

Having been involved in developing educational materials on reflective practice within nursing, and on the interface of informatics with evidence-based practice within nursing and other health professions, I came to focus on examining, within a context of lifelong learning, the possibilities of listervs as a means of reflecting in and on practice.

Andrusyszyn (1995, 1996) had by this time presented her work on reflection within educational courses, but there seemed to have been no work, at least within nursing, on reflection within informal electronic discussion forums. This lead to my focus on the major study area, i.e., on whether there existed, within the discussions themselves, and in the views of participants in the discussions, any evidence of reflection in or on practice. Associated with this was then the issue of whether any evidence existed of the list discussions having an influence on individuals' practice. I decided to continue to focus on just the NURSENET list. Consideration of issues around whether the list constituted a safe environment for discussion (which a lot of literature on reflection suggests is

necessary) and communities (of practice) lead to questions also being framed around these issues.

The core question that emerged from this, and within which this study is situated, is:

Do informal electronic discussion forums, such as listserv discussions, provide an environment within which nurses can reflect on their practice?

This broad question leads to the necessity of focusing sub-questions into a number of areas. Some of these questions are core to the study, while others are less central, but, given the nature of the study, address important aspects.

The core questions that the study seeks to answer are:

1. Is there evidence from the list discussions of reflection occurring?
2. Can the reflection (if it seems to be occurring) be demonstrated to be such by mapping against any recognized models or frameworks of reflection within nursing?
3. Can a specific model/framework be developed and tested (if others seem not to be adequate) for the description and analysis of reflection within listervs?

The associated questions are:

4. Does an electronic discussion forum (such as NURSENET) form what might be recognized as a community (by any definition of such)?
5. If so, does it provide a 'safe environment' within which nurses feel able to discuss practice issues, and within which they might be able to reflect?
6. Do list members feel that there is reflection?
7. Does the reflection within the list discussions meet Kemmis' seven points?
8. Is there any evidence of changes in practice as a result of any reflection that may be occurring?

Further discussion of these questions, and the specific ways in which the data collection and analysis contribute to addressing the questions, is provided in Chapter 4.

1.4 A brief tour of inspection

A number of contexts, already introduced, provide the framework in which this study is situated. The apparently disparate fields of nursing informatics, CMC and reflection are brought together within the study. In this section, I will briefly outline, as a guide, the contents of each of the chapters, together with some brief explanation as to how they fit together to build the whole story. The introduction to each chapter will contain more detail on the content and how each forms part of the whole story being recounted.

Chapters 2 and 3 review the literature most relevant to the various aspects of the study. Chapter 2 deals with the literature relating to CMC, providing both a broad overview through the discussion of definitions of CMC, but also focusing on particular issues that I feel have most direct relevance to the study and the issues raised within it. As is noted in the introduction to Chapter 2, while the literature on CMC is now substantial, and continues to grow, recent literature tends to add little new to some of the basic issues, and much of the material relating to defining CMC derives from the early 1990's. In addition, much of the recent literature has focused on CMC use within formal educational environments, an area of only tangential pertinence to this study, and so only slight reference to this part of the literature is made. Research into CMC is constantly evolving, sometimes building on the results of existing work, at other times seemingly constrained by the classic publications, as if denying the evidence of change. This latter issue will be addressed in the chapter, using some classic studies as examples. Chapter 2 closes by

considering issues arising from the nursing literature relating to CMC, again being confined to that most directly relevant to the study questions.

Chapter 3 reviews the literature dealing with reflection within nursing practice and education, before closing with a discussion of the very limited work that seems to have been undertaken so far relating to any combination of reflection and CMC. A short introduction to lifelong learning and professional development within nursing is provided, but only so as to provide the necessary context for situating the discussion on reflection.

Aspects of the non-nursing literature dealing with reflection are discussed, in particular the work of Schön, to illustrate the origins of many nurses' apparently uncritical adoption of reflection as a panacea for current practice. Brief examples derived from discussion of reflection within another profession, teaching, shows how similar, and apparently common, issues have been raised elsewhere. Models and frameworks of reflection, from within and outside nursing, are discussed, in part to situate the discussion of model development in later chapters. The use of writing, for example through reflective journals, is discussed. This is an issue of importance linking to the nature of CMC as an essentially written form. The chapter also presents some of the recent literature questioning the wholehearted enthusiasm with which nursing seems to have adopted reflection, particularly in view of the lack of evidence for changes in practice resulting from its use.

Chapter 4 provides an account of the methods used within this study to obtain and analyse the data, and demonstrates how the apparent disparate aspects of the study fit together. It provides an overview of methodological issues within both CMC and nursing research to demonstrate how this study is congruent with emerging directions in research. Each of the parts of the data collection is presented, showing its relevance to the whole

study and to how the parts link into the whole. The latter part of this chapter provides a discussion of validity in qualitative research, framed around the issues of validity raised within this study and the limitations thereof.

Chapter 5 provides the first tranche of data. This comprises “snapshots” of NURSENET use over a six-year period, questionnaires conducted entirely by email with NURSENET subscribers, Virtual Focus Groups conducted entirely electronically, and email-based interviews with NURSENET subscribers. These data help to provide answers to several of the questions within which this study is based, as well as providing context for the main data elements, which are the corpus of discussion threads examined in Chapter 6.

Chapter 6 presents an examination of a selection of discussion threads from the NURSENET list, including an analysis of the threads and the evidence they provide for reflection occurring within the list. The threads are examined against models for reflection. The pilot analysis is undertaken against an eclectic (version 1) model derived from models existing within the nursing literature, while the main analysis is undertaken in respect of my own (version 2) model derived, largely inductively, from this pilot analysis. While the version 2 model takes account of the theoretical material on reflection, in many respects it emerges from the reality of the data and the reality of nurses’ practice, in a manner akin to grounded theory research (Burns and Grove, 1987).

Chapter 7 is the final chapter of this thesis – but not, I believe, the end of the story, as the concluding remarks within the chapter will illustrate. Chapters 5 and 6 contain most of the discussion of the data and their analyses, as is common with studies within such essentially naturalistic frameworks, where the data and discussion thereof cannot easily, and should not artificially, be separated. The early part of Chapter 7 summarises the key

issues that have emerged from Chapters 5 and 6, reviewing how the data collected and their analyses have answered the questions within which the study has been situated.

Most, if not all, research studies have areas of interest and questions that are not fully answered to the researcher's satisfaction. Chapter 7 provides discussion of some possible alternative explanations for some of the findings, based in offline forms of group interaction, in addition to consideration of some of the limitations of the study. The whole concludes with some of my wishes and intentions for further work in the areas covered within this study, and for the development of an online community of nursing CMC researchers.

1.5 Chapter 1 summary

As is the nature of a piece of work undertaken over a ~~long~~ period of time, one is bound to encounter, late in the day, materials that one wishes had been encountered much earlier.

One example is Rolfe's (2000) work on the application of postmodern and post-structuralist approaches to nursing and nursing research. [Indeed, Rolfe's discussion of the work of Schön bears many similarities to the views I have developed and expressed at various points in this story. However, to have found this and other materials earlier might have taken some of the "fun" out of the process of thrashing around in the swampy lowlands.

Within this chapter, I have summarised the background to the research, the questions to be addressed, and the material that will be covered in each of the remaining chapters. In the remainder of this text, I will be describing what I have done, and what I think that it means, in a manner that I believe provides a valid description of one aspect of the world

of nursing practice. With that in mind, it is time to move on to consider a selection of the growing literature on CMC, chosen to address issues most pertinent to the research methods and the data used.

Chapter 2

A vast and varied domain

...cyberspace is a vast and varied domain, and rules that seek to generalize indiscriminately across all varieties of CMC do not 'fit' the nature of the phenomenon.
Herring (1996a)

2.1 Introducing the literature

The literature on CMC is now substantial, and by the closing years of the 1990's seemed to have been growing at the same exponential rate as the number of Internet users or of Web pages. In this discussion of aspects of CMC most relevant to the story, I will address the nature of CMC, briefly outlining some of its forms, and my reasons for choosing to concentrate on just one of these forms within this research. As I will be exploring only certain subsets of the whole that is CMC, it is not pertinent to address in this review the whole domain. It is relevant to explore the nature of the phenomenon, making reference to what I will not be addressing in order to provide the context for what I will be discussing in more detail. One of the major aspects considered will be what different writers actually mean when using the term CMC to describe the content of their research or other writings, in view of the application of findings from research on one form of CMC to others.

Other aspects of the CMC literature are also addressed within this chapter, as contextual and pertinent to some of the main elements of the study. Much of the literature on CMC relates to its use within educational contexts. It is not possible here to address all of this literature, but some aspects, in particular relating to less formal modes of education, will

be introduced. This will illustrate how areas being addressed within the study, such as continuing professional development and the use of listservs are sited within the literature. Nurses' use of CMC, and research on and using CMC, will also be addressed, to show how the current study is situated within emerging trends in nursing research and practice, and, as has been briefly addressed in Chapter 1, within the field of nursing informatics. The final aspect of the CMC literature to be addressed relates to online communities and the discussions of whether electronic discussion forums constitute communities. It is one of the contentions of the study that lists such as NURSENET do form online communities of practice, and thus the electronic ethnographic approach to this study is justified.

Having outlined the areas the chapter will explore, we now turn to the first of those areas, the thorny and still unresolved issue of defining CMC.

2.2 CMC: mastering the meaning

2.2.1 Neither more nor less than CMC

'When I use a word,' Humpty Dumpty said in rather a scornful tone, 'it means just what I choose it to mean--neither more nor less.'

'The question is,' said Alice, 'whether you CAN make words mean so many different things.'

'The question is,' said Humpty Dumpty, 'which is to be master-- that's all.'

Carroll (1994)

One problem that has surfaced, time and again, as I have explored the disparate literature on CMC, is that not everyone uses the term in the same way. This creates potential problems for the researcher in attempting to compare the findings of one example of CMC research with another. One finds, for example, that one researcher may have been talking about a range of forms of CMC, while another may have been focusing purely on, and equating CMC solely with, exchanges within computer conferencing systems. Despite

elements of qualitative or naturalistic inquiry, including ethnographic studies, within CMC research stretching back over 15 years, some of the most frequently cited CMC literature has taken results from experimental, positivist research, rather than naturalistic field research. Problems can arise, from philosophical if not practical standpoints, if one takes the results from research of a particular type, on one form of CMC, and suggests they can be applied universally to all forms of CMC. I should perhaps be more precise here and say that it ought to create problems for both researchers and the readers and users of research. Too many researchers seem to have been less than fastidious in their application of findings from research into one form of CMC (e.g., one-to-one email) to other forms (e.g., many-to-many computer conferences). This lack of rigour may, at least in part, explain why many of the findings of early CMC research, undertaken in particular contexts, have been broadly applied and assumed mythic, urban legend status as applying broadly to all forms of CMC, and even with the implication of “for all time and in all circumstances”.

I addressed the meaning of the term CMC and the different elements of communicative practice subsumed within the term by different writers briefly in a paper published in an electronic journal (ejournal) (Murray, 1997e). I suggested that

- there are increasing numbers of forms of CMC;
- the technologies for mediating CMC are changing rapidly;
- there is increasing diversity of users and uses; and
- many forms of CMC, particularly where interpersonal interaction is concerned, seem to explicitly or implicitly serve multiple purposes.

As a result, Wittgenstein’s (1967) ideas of family resemblance seem to provide a useful theoretical framework within which to analyse the different forms and definitions of

CMC. I had encountered the use of this framework in Cash's (1990) analysis of nursing models, and it seemed a simple, yet elegant, way of approaching the issue.

2.2.2 Family resemblance in CMC

According to Wittgenstein (1967), words get their meaning in use; words don't have an innate immutable meaning, but one socially constructed through their use in everyday life. For the term CMC, this indicates that meaning or interpretation arises from the forms of CMC that are in everyday use. One of the major under-researched areas in CMC is the effect of changing technologies and social contexts on the nature of CMC.

Wittgenstein wrote, in *Philosophical Investigations*, that

Instead of producing something common to all that we call language, I am saying that these phenomena have no one thing in common which makes us use the same word for all, - but that they are related to one another in many different ways. And it is because of this relationship, or these relationships, that we can call them all "language".

Wittgenstein (1967, pp.31-32)

If we substitute "CMC" for "language", we see that while there are many things we call CMC, it is more the relationships between them rather than any single common feature, which make them all forms of CMC.

Wittgenstein went on in the same volume to develop his arguments around language and to discuss family resemblance. He chose the example of games, wherein we may all recognize that something is a game, but we cannot identify any one feature common to all games. What, for example, are the common features of games such as chess, football, or MONOPOLY®? We know them all to be games, but probably cannot identify any common feature, although there are overlapping commonalities between some of them. The many different forms that CMC can take mean that Wittgenstein's idea of family

resemblance provides a useful framework within which to attempt to define it and to study it.

2.2.3 Some current forms of CMC

As technologies change, the forms of CMC evolve. Sometimes there is divergence, e.g., the newer audio-visual possibilities to contrast with the purely text-based, while in other aspects there is convergence, as in the amalgamation of many forms within a single Web-browser environment. Some forms of CMC are purely synchronous, some purely asynchronous, while others (e.g., NetMeeting™, ICQ™) are now allowing the two to occur in the same environment. Lawley (1992³) says that the term CMC refers to

...a wide variety of communication systems - ranging from electronic mail over corporate local area networks to the international scholarly conferences distributed over the Internet.

She goes on to say that some aspects of the medium (CMC) remain constant in all its forms, although does not appear to say what she believes those constant aspects are.

There are many different ways of categorising CMC, although the main ones seem to be into purely textual versus audio-visual versus mixed media, or into synchronous and asynchronous. A two dimensional grid (Figure 2.1) illustrates some of the range of types of CMC; this figure is illustrative only, and is not intended to be exhaustive. One can also argue as to whether archived forms of synchronous communications (e.g., Real Audio™ files or file captures of synchronous ICQ™ interactions), if retrieved and used later, may also be viewed as asynchronous forms of CMC. They may, for example, be used as the basis for further interaction or within an educational context.

³ Many online publications contain no page numbering, and so a page reference is not possible.

Figure 2.1 Types of CMC application.

	Text-based	Audio-visual or mixed media
Synchronous	Internet Relay Chat and similar forms (e.g., ICQ™) Computer-conferencing (depending on software used)	Real Audio type applications CUSeeMe™ type applications Computer-conferencing (depending on software used) NetMeeting™, CoolTalk™ - allow simultaneous use of email, voice communications, whiteboard and other communication modes
Asynchronous	Email Listserv-type discussions Ejournals Computer-conferencing (depending on software used) Searchable databases Usenet newsgroups	Ejournals

The difficulties of designing a taxonomy that includes all types of CMC, yet clearly delineates their differences, are noted by Friere (1996). This study examines only one of these many forms, i.e., the asynchronous, text-based application of listerv discussions. Even saying this, though, has some difficulties when one considers the range of software applications currently available for sending and receiving email messages to and from the list.

2.3 CMC: use and abuse

At any given time, in any given place, there will be a set of conditions - social, historical, meteorological, physiological - that will insure that a word uttered in that place and time will have a meaning different than it would have under any other conditions.
Bakhtin (1981)

There have been many attempts to define CMC, which has of necessity changed as the technologies have changed. It has been viewed as a process (December, 1996), a system (Seaton, 1993), a form of group communication, as only asynchronous, as both

synchronous and asynchronous, and as a synonym for ediscourse or for computer conferencing.

Many researchers have confined their use of the term to email and computer conferencing. Seaton (1993, p.50) says that

...cmc is a communications system which is telecommunications based; that is, it primarily uses electronic mail and computer conferencing software to connect dispersed individuals asynchronously.

Burge (1993) seems to equate CMC with group communications carried out only by text messaging, while the ProjectH team (Rafaeli et al., 1997) studied group forms and looked at listserv discussions, CompuServe™ SIGs and Usenet groups. Walther (1992, p.52) says that CMC “is synchronous or asynchronous electronic mail and computer conferencing.” Kaye, Mason and Harasim (1989) seem initially to equate CMC with computer conferencing, but then discuss CMC systems, which include one-to-one email, asynchronous group communication via conferences, real-time “chat” mode, facilities for up/downloading files and library areas for texts. Metz (1994) sees CMC as including chat areas, and Multiple User Dungeons or Domains (MUDs). CMC is sometimes used specifically and only to refer to computer-mediated conferencing (e.g., Jennison, 1996). Mabrito (1991, p.510) includes in CMC “computer conferences, electronic bulletin boards, electronic mail, and ‘real-time’ (synchronous) networks,” a range also considered by Palme (1993) and Steeples et al. (1996). Hartman et al. (1991) describe CMC as being text-based, but also as being asynchronous more frequently than synchronous.

Reflecting, perhaps, the reality of use in educational contexts, many of the educationally-situated papers dealing with CMC, especially from the late 1980s and up to at least the mid-1990s, have discussed the use of computer conferencing within formal education

courses. Some have addressed CMC within entirely online courses, while others have discussed an online component of a mixed media course presentation within distance education or other educational modes. This may be one of the reasons that so many papers exist that explicitly or implicitly equate CMC solely with some form of computer conferencing. Phelps et al. (1991), for example, looking at CMC use in distance education, and discussing the linking of different geographic locations and time zones, seem to deal only with conferencing and group use. Some authors in the education field explicitly acknowledge that they are using the term CMC to refer specifically, often only, to computer conferencing. Reynolds (1994), in describing a research study of the introduction of CMC, equates it with conferencing and seems to use the two terms interchangeably.

In addition, some authors seem to confuse the picture even further by attempting to turn the order of viewing the two terms on its head. Thus, Levinson (1990) suggests that computer conferencing may be the better term for the range of what we generally refer to as CMC, and that

...the term “conferencing” accentuates the inherent “groupness” of this educational medium. (p.7)

He was writing mainly within the context of educational use of CMC, and considering the effects of social factors, such as interactions. He further defines CMC as

...the combination of word processing and telecommunications via personal computers, telephone lines, and central computer conferencing systems...
(Levinson, 1990, p.6)

Where attempts have been made to define CMC, the definitions have reflected a number of differing perspectives, some focusing on the communicative aspects and others on the technological. The definition that I have adopted within this study is one that,

pragmatically and in light of the rapidly changing nature of communication technologies, does not specify forms. It derives from December (1996), who describes CMC as

...the process by which people create, exchange, and perceive information using networked telecommunications systems that facilitate encoding, transmitting, and decoding messages.

He goes on to refer to the different ways in which

...studies of cmc can view this process from a variety of interdisciplinary theoretical perspectives by focusing on some combination of people, technology, processes, or effects.

The social aspects of the communication, rather than the hardware or software, form the basis of some definitions. Caldwell and Taha (1993) said that CMC was defined by the sharing of symbols and ideas between people, through the mediation of some form of communications technology. Jonassen et al. (1995) also focus on the facilitation of sophisticated interactions, both synchronous and asynchronous, by computer networks in their definition of CMC. One of the most overt examples of the move away from a technological focus in definitions is that of Jones (1995b, p.16), who says that

CMC, of course, is not just a tool; it is at once technology, medium, and engine of social relations. It not only structures social relations, it is the space within which the relations occur and the tool that individuals use to enter that space.

More recently, we have the introduction of a range of new terms to describe some of these forms of CMC, perhaps as a result of attempts to research different forms within different contexts, for example social as opposed to educational use. Berge and Collins (1995, p.183), for example, discuss the educational use of what Spitzer (1986) refers to as a computer-mediated “Scholarly Discussion Group” (SDG), an

...umbrella term for those electronic discussion lists, Internet interest groups, e-journals, e-newsletters, Usenet groups, forums etc that scholars choose to participate in for scholarly or academic discussion.

Rojo (1995, 1996) uses the term “electronic forum” to refer to “electronic discussion groups conducted through the exchange of messages via computer networks.” Perkins and Newman (1996) and Foertsch (1995) introduce the terms ediscourse or electronic discourse. Perkins and Newman (1996, p.155) describe ediscourse as

...the way in which electronic text is produced, transmitted and consumed using computers. It is also the social relationships and context through which this communication is mediated.

Foertsch’s (1995, p.302) discussion of electronic discourse seems similar, as she talks of

...this new medium, which involves writing on computers and then sending the text to one or more readers through a computer network, is so quick that it nears the interactivity of speech...Electronic discourse, or *e-disc*, includes a broad range of communicative formats...e-chat involves synchronous dialogue...posting messages...to a group of individuals and having asynchronous group discussion...more formal group discussion...e-journals...disseminate peer-reviewed articles...and allow for more rapid commentary...

Taking the above into account, CMC is more than just one-to-one email, or computer conferencing or listservs. It also includes searching databases, the flourishing forms of ejournals and increasingly will need to include a mixture of text, audio and video. The research literature on CMC shows few commonalties of definition or use of the term, in what it includes and doesn’t, apart from referring almost exclusively (until very recently) to text-based communications. Different people use the term in different ways, and in terms of Wittgenstein’s family resemblance, they are related in different ways.

The use of the term CMC, despite the many definitions that highlight the discursive and social elements, tends to place the focus on the computer, i.e., on the technology, the hardware and software. Much of the more recent research, however, has focused on the interpersonal communicative actions which are occurring, and which are enabled, through the use of a variety of computer and communications technologies. The interactions, the discursive movements that are taking place, are one of the main focuses of this study.

2.4 Some urban legends and a critique

It is illogical to assume that meaningful interaction is dependent on the communication of emotion in a face-to-face, spoken-word-to-spoken-word, ear-to-ear context. Would this imply that the hearing impaired and the blind cannot engage in meaningful interaction?
Waskul and Douglass (1997)

There are several seminal studies in CMC that it seems *de rigeur* for any new article or study on CMC to cite, irrespective of their nature or context. However, this is not my reason for using them here. My purpose is to examine some of the ways in which the results of early, often experimental, studies have gained a much wider application and become forms of urban legend in not only the popular imagination, but also, seemingly, that of many CMC researchers. I will examine two of the most frequently cited issues here to illustrate this point.

Many cite Sproull and Kiesler's (1986) seminal article, analysing the exchange of email in a commercial organisation, as evidence that CMC is a less rich or powerful communication medium than face-to-face (F2F) interaction, due to the absence of the many interpersonal, often non-verbal, communication cues present in the latter. While it is true that this was one of their findings, and not wishing to decry the importance and influence that their work has had, it must be accepted that it was undertaken in a particular context. The study was of the use of electronic mail within a business organisation in 1983. This time and context meant that the existing forms of CMC were used by a relatively privileged few, in a limited range of organisations settings (often academic, governmental or commercial). Today, the many forms of CMC, and in particular email, have become almost mainstream practice for many millions of people of all ages, experiences and backgrounds, in all parts of the world, and yet we still see these findings being reiterated and uncritically generalized. The data collection for Sproull and

Kiesler's work comprised a sample of 1248 messages exchanged by 96 people, 60% being male, of mean age 36.5 years and with mean educational attainment of at least college degree level. Are their findings, that CMC is a less rich communication medium, applicable to email use over the global Internet, nearly 20 years later, years which have seen the widespread dissemination of a vast array of emoticons and other such communication devices that have sought to enrich that communication? The answer has to be, I believe, a definite "not necessarily".

One of the other findings from this study, more positive but less widely cited, was that email use resulted in the exchange of additional information that the authors felt would not have been communicated using other media. As the authors themselves note,

The benefits were in expanding and changing the distribution of information within the organization. The results of our research suggest that much of the power of EMS [electronic mail system] may stem from changing the nature of information and informants, not just the quantity and speed of information.

(Sproull and Kiesler, 1986, p.1511)

Can one, then, also extrapolate from a business organisation context, with a 60% male sample, to that of a virtual and informal community existing through discussions on a listerv which is at least 80% female (such as NURSENET), these findings on the potential power to change the nature of information exchange? I am not stating that Sproull and Kiesler's findings should automatically be rejected, simply because they are so old, or derived from a particular context. But nor should we, as too many have done, automatically continue to reiterate them. One of the incidental purposes of this research is to examine whether, in the context studied, they are applicable. As the data examined in Chapters 5 and 6 will demonstrate, listserv discussions are a very rich and powerful communication medium, and they can facilitate the exchange of information that might not otherwise be shared.

The second urban legend of CMC is that it tends to be impersonal, even antisocial, full of uninhibited outbursts and raging arguments. Originally published in 1984, Kiesler, Siegel and McGuire (1991) discuss the social psychological aspects of CMC, stating that

Because it uses printed text, without even the texture of paper to lend it individuality, electronic communication tends to seem impersonal. ... Messages are depersonalized, inviting stronger or more uninhibited text and more assertiveness in return. (p.334)

They go on to state that “It might be especially hard to communicate liking or intimacy without writing unusually positive text” (p.334) before suggesting that

...social standards will be less important and communication will be more impersonal ... [CMC] seems to comprise some of the same conditions that are important for deindividuation – anonymity, reduced self-regulation, and reduced self-awareness. (p.335)

Siegel et al.’s (1986) article, reporting an experiment using groups of three randomly-assigned people communicating via synchronous text-based conferencing, is another frequently cited early example showing that CMC resulted in much more uninhibited and anti-social communication behaviour than did F2F communications. Again, their research was conducted in the early 1980’s, but more importantly, they were examining groups who were trying to reach consensus communicating “face-to-face, and in simultaneous computer-mediated discussions or through computer mail.” (p.163) They used groups of three people who did not know each other. Again, we must consider how applicable these results are to other forms of CMC and other contexts, especially those involving large numbers of people who either know one another or who develop rapport or relationships through long periods of online interaction.

A similar critique of the ways in which findings of early CMC research have become accepted and unchallenged is provided by Eldred and Hawkisher (1995). They note the experimental nature of much early CMC research and its grounding within social

psychology. They question, in a manner congruent with the philosophical framework I have adopted for this study, the appropriateness of positivistic research approaches. They also seem to question the widespread application of many of the findings of early CMC research when they state:

Researchers ... have accepted many of the early findings as givens rather than as hypotheses that fuel continuing research agendas. Moreover, these findings or results are imported as universal 'conclusions'.

Eldred and Hawkisher (1995, p.334)

Higgins (1991/1998) also criticises the misuse of Kiesler, Siegel and McGuire's (1991) work and writes of

...the effect of this combination of a popular scholarly report and the confusion in terminology relevant to the field, is that some of its main findings have been misapplied to the more widely implemented and researched asynchronous mode ... they did not emphasise the fact that most of their data was drawn from synchronous text-based interaction, not asynchronous...

Walther (1992) was one of the first CMC researchers to question the wider application of many of the early research findings, and in particular to critique the practice of applying the results of experimental studies to field conditions of CMC use. He stated that field research on CMC (i.e., on communities of real users) suggested much more positive findings. My own research, including this study, and that of many other CMC researchers in more recent years, also suggests more positive aspects of communication, and far less incidence of uninhibited and antisocial interaction than the early studies indicate.

Waskul and Douglass (1997) provide one of few CMC research papers to explicitly state the limitations, including on wider applicability, of their work. Their paper focuses on online chat, only one form of CMC, and the authors state explicitly that the findings "are not intended to be generalized to all forms of computer-mediated interaction." (p.377)

In the same paper, Waskul and Douglass (1997) include the quotation used at the beginning of this section, questioning the primacy of face-to-face interaction as the ideal form. One of the main features that I believe the discussions on NURSENET and other nursing listserv forums demonstrate is that meaningful discussion and interaction can and does occur in purely textually-mediated, non-face-to-face environments, where some of the “normal” communication cues are absent. In addition, these forums demonstrate that, if Kiesler, Siegel and McGuire’s (1991) assertion of electronic communications seeming impersonal was ever true, it is certainly not true in many of the interactions within these forums today.

Higgins (1991/98) encapsulates the same kind of critique as Waskul and Douglass (1997), when he says (chapter 2.3.2) that

...whereas a picture is said to be worth a thousand words, one might also proclaim that certain combinations of words can elicit a wealth of images, sounds, feelings, and other sensations.

So, what does it matter whether those words are on paper or a computer screen? They are still words, and just as a novelist can convey emotions and personal communication and interaction on paper, so others can undertake similar communication on computer screens, as much of the data examined in Chapter 6 will show.

A number of authors have addressed issues around the uncritical generalization of some of the results of early CMC studies. It is imperative that all researchers into any aspect of CMC carefully consider the contexts of earlier work they are citing in justification of their own. That said, there will be many occasions in which findings from research into one form of CMC can be justifiably applied to other forms; but the case must be made.

2.5 CMC research: offline methods and online groups

2.5.1 Evolving ways of using the obvious data

The need to move away from positivist-oriented approaches to research on CMC is increasingly recognized in recent years. Schrum (1995) is one of several CMC researchers who discuss changing the “normal” (i.e., offline) research tools to take account of new electronic communities and of a need to adapt the traditional techniques of research. She discusses the problems for the CMC researcher in trying to enter the local context of a community or group of discussants using CMC, especially when that context may be globally spread. In advocating new research techniques for CMC, she proposes “taking an ethnographic perspective, using interviews and participant observation.” (p.313) This approach is essentially what has been adopted, and adapted, within this study. Schrum also raises some of the ethical issues concerned, concluding with a set of proposed guidelines; aspects of these ethical issues are discussed in Chapter 4.

Waskul and Douglass’ (1997) study, albeit of synchronous online chat, as opposed to asynchronous forms, used similar methods to those proposed by Schrum (1995). Waskul and Douglass (1997, p.375) describe their “use of an e-mail survey, participant observation, content analysis and open-ended interviews,” suggesting some convergence of methods within CMC research. As will be seen in the discussion of recent nursing research into CMC, similar methods are also now being used there.

The variety of methods and approaches to CMC research developed in recent years is reflected in two volumes in particular. Ess’ (1996a) book examines a range of issues in the analysis, application and development of CMC. In particular, the volume addresses philosophical issues and the effect of gender on CMC use. It presents a range of

philosophical approaches and frameworks for the analysis, including post-structuralist perspectives (e.g., Yoon, 1996), semiotics (Shank and Cunningham, 1996), critical theory (Ess, 1996b) and ethnography (Herring, 1996b).

Herring's (1996c) collection of essays on linguistic, social and other issues in CMC presents more analyses based in mixed methods and philosophical approaches and frameworks. These include conversation and discourse analyses and ethnographic studies of online communities with some similarities to this research. After noting that

...CMC is not homogeneous, but like any communication modality, manifests itself in different styles and genres... (p.3)

Herring (1996c) indicates how, due to a lack of pre-existing suitable methodologies,

...authors in this volume have had to devise their own methodologies or adapt methods from other domains to address their research questions. (p.5)

Various forms of content analysis, some grounded in specific theoretical frameworks and others not, have been used over at least the past 10 years in CMC studies. Henri (1991) noted that, at the time of writing, CMC research tended to focus on gathering quantitative data on participation, suggesting a need to move on to qualitative studies,

...to analyse the interactive exchanges of CMC and to demonstrate the effects and advantages of interactive exchange in learning. (p.123)

A similar view was expressed by Mason (1991, p.113), who asserted that it was time to move away from the position where

...the most obvious data available to conferencing evaluators - the transcript of the conference interactions - is paradoxically the least used

Henri (1991) queried whether a specific, single method for the analysis of CMC messages existed, outlining the range of methods available for analysis of other communication methods and patterns. Henri's (1991) solution was a model and analytic framework that

analysed the text of the messages from a number of dimensions, including levels of participation, social aspects of the interactions, types and levels of interaction and intertextuality, and evidence of cognitive and metacognitive aspects of the messages. While a step towards some of the later methods developed, this analysis seems to have taken the text in isolation, rather than including consideration of the social and other contexts within which the messages were being exchanged. Some researchers were already using more qualitative approaches, for example the ethnographic and conversation analysis approach used by Murray (1988) in a longitudinal study of CMC in an organisational environment.

Some attempts have also been made to use postmodern and post-structuralist approaches or frameworks in the analysis of CMC. Aycock (1995) was one early example, exploring synchronous CMC (Usenet) discussions within Foucault's (1988) concept of the technologies of self. Finally, in a view that seems to reflect the direction in which much recent CMC research has moved, and congruent with the approaches adopted for this study, Baym (1995, p.161) says that

Rather than focusing on building predictive models of CMC, more naturalistic, ethnographic, and microanalytic research should be done to refine our understanding of both influences and outcomes.

2.5.2 Researching listservs

Listservs are relatively under-researched in comparison with, for example, studies of the use of computer conferencing environments within university-level courses. However, perhaps due to the ease with which the data can be accessed, i.e., by simply joining a list and monitoring the discussions, a reasonable corpus of research on them is developing. Listserv discussions have been examined from a range of perspectives, for a range of purposes, and using a range of research methods. One early example was the ProjectH

study, an international collaboration that developed a corpus of messages from several lists over a number of years in the early 1990s (e.g., Allbritton, 1996; Rafaeli et al., 1997; Sudweeks, McLaughlin and Rafaeli, 1997). Research on listserv-based health/illness support groups is a growing area, and is considered in discussing the literature on nurses' use of CMC. A few examples of the range of research on lists is presented here, while other examples (e.g., Rojo, 1995) are integrated into other sections of this chapter.

One area of study has been that of the nature and forms of interaction within listserv discussions. Korenman and Wyatt (1996), for example, examined resemblance of interactions on a single list with face-to-face interactions. Herring (1996e) examined two large listserv discussions, one with a primarily male subscribership and one whose members were mainly female, to explore whether, according to stereotype, men and women used the list for different purposes. She concluded that, while the messages were structured differently in the way in which other users were addressed, the stereotype was not supported, with users on both lists proving similar message genres. With varying results, the examination of gender issues within CMC, and in particular explorations of whether all forms of CMC are male-dominated, has been undertaken by other authors, e.g., Hall (1996), Klemm et al. (1999), Savicki, Lingenfelter and Kelley (1996). One of the most comprehensive discussions is provided in Spender's (1995) book on the subject.

2.5.3 The oral-textual debate: a short introduction

There is a substantial body of work within the discussion of CMC practice and research on the nature of CMC, in particular whether it is akin to oral discourse or to written texts, or whether, as Yates (1994) suggests, it is a different form. This thesis is not the place to investigate these issues in depth, but a short exploration of the key issues is pertinent.

One aspect of this study is the suggestion that the textually oriented aspects of CMC, and

in particular asynchronous CMC, support the possibility of greater reflection in the composition of CMC than is seen in many forms of oral discourse.

CMC has been likened to speech, and to writing, and considered to be both and neither simultaneously. In addition to Yates (1994), Kaye (1991) suggests it is different from other discourse forms, incorporating a range of styles or genres. Poster (1990, p.76) criticises the oral/literate dichotomy, believing that it “obscures the uniqueness of electronic language by subsuming it under the category of writing.”

Discussion list archives, and the saving of interesting messages by individuals, provides a situation whereby a

...group which exists through an exchange of written texts has the peculiar ability to recall and inspect its entire past. Nothing quite like this is available to a community based on the spoken word. (Feenberg, 1989, p.25)

This ability to recall and examine the exact form of a communication has profound significance for research conducted on or using CMC (McConnell, 1988). In true post-structuralist style, Bolter (1989, p.129) suggests that the “computer promises to redefine the relationship between author, reader and writing space.”

2.6 Educational uses of CMC

2.6.1 CMC in formal courses

It is not my intention to say much about this large literature except to note its presence and provide a few examples. Harasim (1990) has suggested that online education, especially through the use of computer conferencing and other forms of CMC, could foster and facilitate collaborative learning activities, especially through group interactions.

Dede (1996) has more recently expressed similar views, while constructivist approaches to learning (e.g., Jonassen et al., 1995) seem, to some degree, to have become confused with some of the discussion of development of online education and of CMC as a component of online courses. Yakimovicz and Murphy (1995) provide one example of this constructivist approach, in their examination of CMC in a formal course. Much of the work on CMC within education during the 1990's has focused on its use within formal education environments, including both distance education and through the use of CMC as an adjunct to teaching in classroom settings. This has been the case within both nursing education and many other discipline and subject areas.

Mason and others at The Open University have done much of the UK work in this area. In one example, Mason (1995) studied the use of computer conferencing in a university-level philosophy course (an area which would be expected to involve discursive activities) and found benefits in respect of the nature of the interactions and learning. Hiltz's (1995) work in the USA on the "Virtual Classroom" showed increased collaboration in learning and independent thinking among students using CMC as part of their learning experience. Mason (1998), as a result of many years of work developing online courses centred around the use of CMC, described three models for online courses with varying degrees of technology and CMC involvement. The use of listservs within courses from a non-nursing perspective is exemplified by Friedman et al. (1995) within an undergraduate writing course.

The use of CMC within education, and benefits including professional growth, have been discussed for many years. Ellsworth (1995) showed the promotion of thinking skills by using CMC in university courses, while Collins and Berge's (1995) volume provides additional examples. Berge and Collins (1993) summarised the benefits and some of the

evidence, concluding that the greater potential for interaction and the development of virtual communities were among the major benefits. In their more recent examination of “Scholarly Discussion Groups” (Berge and Collins, 1995, p.183), a term that includes everything from listerv discussions to electronic journals and seems to be a substitute for the term CMC, the benefits within formal educational environments and to more informal interaction are reiterated. The value of informal networks has received relatively little attention in CMC research, with Gresham’s (1994) examination of their potential being one of the few examples.

Andrusyszyn (1996) comes to the conclusion that CMC used within learning environments has differences from other forms of distance education, and that it can provide

...individual learnings facilitated through the social construction of knowledge and the collegial sharing and exploration of meanings and understandings. (p.5)

In another unpublished Canadian doctoral study, Burge (1993) found that over 85% of the graduate students involved in the use of a CMC environment thought that their thinking was more reflective in the CMC environment than in classroom-based face-to-face educational settings.

2.6.2 CMC and critical thinking

Steinberg (1992) suggested that CMC was especially suited for higher order thinking skills, critical thinking and analysis, and problem solving. In addition, Steinberg (1992, p.45) suggests

...there is evidence that...using the computer as the communication medium elicits more elaborate and better developed writing.

An early experimental study reported by Newman, Webb and Cochrane (1995) and Newman et al. (1996) compared CMC, in the form of computer-supported seminars, with face-to-face seminars. They found that the

...computer conference discussions showed a significantly deeper overall critical thinking ratio than the face-to-face seminars (Newman, Webb and Cochrane, 1995)

even though the students “said” less, and that critical thinking increased with the level of participation. They also found more evidence in the CMC seminars of bringing in outside materials and experiences, and of linking ideas together.

One of the criticisms of many forms of CMC discussion is that there can be a tendency for a few members to dominate the discussions, or for the majority to lurk and actively participate. However, as Newman et al. (1996) note, it

...is quite easy for face-to-face discussions to degenerate into monologues, silence filled by the teacher, or an exchange of unjustified opinions. So there is even a question of whether critical thinking takes place in face-to-face seminars, let alone computer supported ones.

In the nursing context, and within formal educational courses, Todd (1998) found evidence of increased critical thinking when CMC-based critical thinking exercises were included in an undergraduate nursing course. There was, however, the incentive to the students that participation in the exercises was part of the course requirement and contributed to their course grade. This is becoming common practice in online courses as a way of encouraging levels of active participation.

2.6.3 CMC and reflection

The ability of asynchronous CMC to provide potential opportunity to reflect on messages has been discussed since the early days of CMC use, by users from many disciplines.

Owen (1993), in describing electronic writers in residence programmes, talks of CMC facilitating considered responses and of the possibilities of building reflective communities. Mason (1988) also described this possibility for providing a considered response. However, outside of the few examples such as Andrusyszyn (1995, 1996), there seems to have been little research-based examination of this area.

2.7 Nurses' use of CMC

2.7.1 CMC and nursing informatics

By any of the commonly used definitions of nursing informatics, CMC is becoming firmly embedded within the mainstream of nursing, and is increasingly being used within clinical and academic spheres of nursing. Ball, Hannah, Newbold and Douglas (1995) consider nursing informatics to include any use of information technologies for educational purposes. The IMIA-NI definition of nursing informatics makes specific reference to the use of communications technologies, while several papers at the most recent World Congress on Nursing Informatics, NI2000, (e.g., Lakeman and Murray, 2000; Skiba, Holloway and Springer, 2000) make reference to studies of CMC. Turley's (2000) work in defining nursing and health informatics sees communication, primarily through electronic media, as a key element. Goossen (1996) also, in a lengthy definition, included the use of telecommunications and networks as an essential component of modern nursing informatics practice.

Within recent explorations of the nature of nursing informatics, and more widely health informatics, there is strong congruence between the goals of informatics and continuing education or lifelong learning. It is through CMC, and the electronic exchange of information, ideas and discussion of both theory and practice among nurses, who may be

both geographically dispersed and possess a range of practice experience and interests, that we may see real progress towards the narrowing of the theory-practice gap.

2.7.2 In the early days

Nursing literature on CMC from the late 1980s and early 1990s tended to the rhetorical, discussing the potential for communications and interaction among nurses and between nurses and their patients. Published studies of nurses' use of the Internet and CMC more specifically were sparse, with fewer than half a dozen prior to about 1996. This is most likely explained by the generally low levels of access that nurses had to the Internet and CMC during that period.

Taylor (1990), Taylor, McMurdo and Herring (1990) and Wyatt et al. (1989) discuss the use of CMC within a School of Nursing in Scotland, while Billings and Phillips (1991) investigated the development of health education information by nurses for school students in the USA. Russin and Davis (1990) investigated CMC as a vehicle for delivery of continuing education in the USA; the latter found one of the major impediments at the time to be the profession's lack of preparedness, particularly the numbers of nurses capable of using online facilities. My own research into nurses' use of CMC was inspired, in large part, by the description of a computer conferencing system for nurses called E.T.Net, run from and funded by the US National Library of Medicine (Wainwright and Sparks, 1993).

2.7.3 Towards researching CMC in clinical issues

As communication, in its many forms and via many media, is an essential part of the everyday work of all nurses, irrespective of their place of work or domain of practice, it is not surprising that nurses should have started to explore the potential of CMC. Higgins

(1991/98) recognized the importance of human communication as an integral component of CMC, nursing education and co-operative learning, the three strands that formed the focus of his doctoral research. Higgins was researching the use of both asynchronous and synchronous CMC in a formal educational context. He used pairs of students, working in a collaborative manner to achieve certain goals, i.e., establishing nursing diagnoses and a care plan. He noted some differences between students using the asynchronous and synchronous modes of CMC, but no differences in enthusiasm and motivation.

Nurses have used CMC primarily for educational purposes, particularly in North America. Holtzclaw, Boggs and Wilson (1993) describe a research group's use of CMC for collaboration, communication and planning, while Lyness and Raimond (1992) used CMC to teach consensus-building skills to nurses. The ENB CAL project (Winders, 1993) in the UK used email for assignment work and promised the development of computer links between clinical and educational areas. This potential was not pursued, and the project was, perhaps, ahead of its time in terms of the (non)existence of a critical mass of nurses educators with access to the communications technologies. Taylor, McMurdo and Herring (1990) found considerably improved communication between students and their placement supervisors, primarily through overcoming geographic isolation. Using an online version of a reflective diary or logbook, students found they had swifter feedback from tutors and the anti-hierarchical nature of the medium was evident. Students were more confident and less deferential when communicating with teaching staff (Taylor, 1990), while Wyatt et al. (1989) additionally found that the students developed skills in collaborative project work.

From the mid-1990's, more and more nurses began to describe, through conference presentations and publications, ways in which CMC has been used within formal

education settings. Andrusyszyn (1995) for example, described the use of CMC within a course exploring nursing theory and models, while McLaughlin (1995) explored “Virtual Nursing” within the synchronous forms of CMC provided by MUDs (multi-user domains). Edwards (1996) described the use of different forms of CMC in a Canadian post-RN course delivered through distance education. Cragg (1996) used content analysis of nurses’ engagement with CMC on another course, demonstrating the advantages of asynchronous communication for working nurses who may be unable to meet physically at regular intervals. McCartney (1996) has also addressed the use of discussion lists within clinical education, and her students’ development of information literacy and critical thinking skills. MacPherson (1997), through the use of CMC within a formal course offered to nurses, also found evidence of knowledge development and the building of a sense of community. Bowers (1997), the listowner of a psychiatric nursing discussion list, presents a content analysis of discussions on the list during its first 16 months of its existence. His findings are congruent with other studies from that era (e.g., Lakeman, 1997; Murray, 1996), noting the use of discussions to explore, and challenge, current practice.

While much of nurses’ early use of CMC related to college/university teaching, a notable exception is the work of Ripich, Moore and Brennan (1992) and Brennan (1997). They have described nurses’ use of CMC to provide home-based care and support with two groups, specifically people living with AIDS and caregivers of those suffering the effects of Alzheimer’s disease. Contrary to the belief that computers would lead to a diminution in the level of expressive interactions, Brennan’s (1997) work demonstrated that nurses used very similar types of intervention to those in face-to-face group encounters. Brennan’s (1997) review of ten years’ experience of the ComputerLink projects demonstrated that people naïve to computer systems (the carers) could and would make

use of them, and that CMC could be as rich and expressive as face-to-face communications. She also found that the systems could be extremely beneficial to carers through careful planning by nurses of their communication and noting of the communication patterns of users to determine need and identify possible problems. More recently, Fawcett and Buhle Jr. (1995) describe their use of CMC to research the use of the Internet and the needs of cancer survivors.

2.8 Nurses' current research on CMC

Recent nursing research has increasingly been into more practice-oriented uses of CMC. Through the study of informal CMC environments, this has focused on the use of CMC as a vehicle for patients, sometimes in self-help groups and sometimes through interaction with health professionals, to explore their health and illness issues, and to develop degrees of self-empowerment. The early work, already mentioned, of Brennan and colleagues has been influential. Ripich, Moore and Brennan (1992), in describing the ComputerLink projects, showed the value of computer networks to deliver nursing interventions and care, and also the value to patient/client/carer groups themselves.

Much of the more recent work has focused on patients with cancer, and many of the reports have shown considerable similarities in terms of both the results obtained and the methods used. In respect of the methods used for gathering and analysing data, Klemm, Reppert and Visich's (1998) study of a CMC-based cancer support group for patients is typical. The electronic discussion forum, a listserv, comprising cancer patients and their carers and friends was examined, and a corpus of messages to the list selected. The corpus was examined, by a form of content analysis, for both quantitative levels of interaction and contributions by gender, and a categorisation of message genres was

developed and the corpus analysed quantitatively and qualitatively. The study report provides no theoretical background for the development of the content analysis, except to say that the categories were derived inductively, and while implications for nurses were derived from the study, they were not examined in relation to any other similar studies. This was one of the first reports of such a study by nurses, and as such there was, at the time, little nursing literature with which to compare the study and its results.

Despite the limitations of the Klemm, Reppert and Visich's (1998) study, there are two issues of note. The first is that the categories derived for the content analysis of the discussion corpus have general similarity to the categories derived from other more recent similar studies of online support groups. They include seeking and giving information, support and encouragement, and descriptions of personal experience. They are also similar to the categories derived within my own MSc research and those derived by other, non-nursing, CMC researchers, in studies of online discussion forums. The categories are also congruent with the benefits to patients that Brennan and colleagues derived from their work on CMC with patients and carers, including information giving and seeking, encouragement and support, and the recounting of personal experiences. These categories are also similar to the types of messages most commonly seen within the reflective discussions on the NURSENET list.

In more recent analyses, Klemm et al. (1999) examined gender differences in communication activities on CMC-based cancer support groups, while Han and Belcher (2001) studied the use of CMC support groups by parents of children with cancer. Cudney and Weinert (2000), using a more formal and structured computer-conferencing environment for patient support, found similar results to those of Klemm, Reppert and Visich (1998) in terms of psychosocial support. A similar study by White and Dorman

(2000), although using an Alzheimer's caregivers' support group, based their method and analysis categories on those used by Klemm, Reppert and Visich (1998). In addition to similar benefits to list subscribers, they also noted levels of participation, as a proportion of total list subscribership, similar to those I have noted in this study, and also raise the question of how much benefit lurkers might gain vicariously.

Nurses, of course, do not have a monopoly on the investigation of online support groups, and research by King (1994) into electronic support groups for recovering addicts is one early example wherein others have sought to explore both the use of the medium and the issues associated with such research. Similar results to those of Klemm, Reppert and Visich (1998), although with different categories, are shown in the exploration by Weinberg et al. (1995a, b) of a breast cancer support group. They found evidence of information exchange, social support, and altruism. More recent work by, for example, Preece (1998) and using methods similar to the nursing examples discussed above, has demonstrated the value of such groups in terms of information sharing and empathy.

2.9 Social interactions and online communities

...people will both shape and be shaped by electronic communication. Research that stresses CMC for purely a work-related, informational approach forgets to take into account who is reading and responding to the messages.

Eldred and Hawkisher (1995)

2.9.1 Social interaction and electronic altruism

Recent work, including research-based as opposed to merely rhetorical perspectives, has discussed the social nature of CMC. This social nature was evident, though, even in early work emerging at the same time as that of Sproull and Kiesler (1986) and Kiesler, Siegel and McGuire (1991), although less widely publicised.

Mihalo (1985) undertook a small study of bulletin board use, examining 26 messages, forming 12 exchanges between 2 people over a period of several months. While the applicability of his results to today's environment have to be treated cautiously, not least given the different technologies available and their ease of use, he suggested that asynchronous exchanges could lead to durable social relationships. He concluded that

One cannot predict that such relationships will emerge as frequent complements to other kinds of interactions, such as those in face-to-face encounters, but if they do, they will temper the bleak image, painted by futurists, of a completely impersonal society brought about by the computer. (p.205)

Kiesler (1991) identified what she termed "electronic altruism" to describe the ways in which participants in electronic discussion forums exchanged and shared information. She found from research on a number of types of CMC environment, that

People are responding to requests for help from strangers with no expectation of any direct benefit to themselves ... The result is an electronic altruism quite different from prognostications that networks would destroy the social fabric of organizations. (p.153)

Precisely this kind of altruistic exchange is seen within many of the nursing discussion lists, and will be demonstrated in the analysis of the discussion threads (Chapter 6). Rojo (1995), in a study of several listservs, noted a similar phenomenon, as well as noting other positive benefits from membership of such lists over and above simple information exchange.

Zack and McKenney (1995) examined the influence of social context on patterns of face-to-face and CMC interactions within organisational settings and found that communications technologies were used in ways that generally were consistent with reinforcing the existing social structure. Walsh and Bayma (1996), examining CMC use by scientists in several different fields, found that CMC use differed by field and social structure. It seems clear that social structure and contexts have an important interaction

with CMC, but that the nature of that interaction is often context-specific and cannot necessarily be generalized.

2.9.2 Online communities

One of the questions forming the basis for this study is whether online discussion forums, such as NURSENET, can be regarded as communities. Implicit in such discussions there is often an unstated assumption and comparing the online situation against an “ideal” form of offline community; a form of Derridean binary opposition. This is noted by Mason (1993) who, in summarizing the issues relating to the possibility of personal development through online interactions, states that

...we have an unquestioned belief in the superiority of face-to-face interaction and the consequent relegation of the written word to, at best, second place. (p.12)

Jones (1995b) also talks of community formation and sees CMC as allowing us to “customize our social contacts from fragmented communities.” (p.16) He also questions the assumption of face-to-face communication as the ideal against which to compare other forms.

There is a belief among many, especially among many nurses, and even among informatics nurses skilled in the use of CMC, in the necessary superiority of face-to-face communications and interactions, a belief often untested. It is not my intention in this study to address whether offline forms of community might be an ideal against which online forms should be considered. I wish simply to show that, from the views of CMC researchers who have examined the issue, there seems to be a general acceptance that communities can and do exist, albeit perhaps taking different forms from offline communities.

Etzioni and Etzioni (1999) did compare aspects of offline and CMC communities, and examined the ability of CMC to form communities and sustain them, in part addressing the questions “Can virtual communities be real and have the same basic qualities as f2f communities?” In attempting to examine the issue, they discussed how community is defined, noting the difficulties in CMC writings where community meant different things to different writers/researchers. The forms of online community they encountered ranged from close-knit social groups to amorphous aggregates, with in addition the attempted online emulation of offline neighbourhoods in places like Geocities™. They also noted, however, the difficulties of even finding a commonly agreed offline definition of community. For their own research purposes, they defined community, as

First, it is a web of affect-laden relationships that encompasses a group of individuals ... referred to as bonding. Second, a community requires a measure of commitment to a set of shared values, mores, meanings, and a shared historical identity – in short, a culture. (p.241)

Etzioni and Etzioni (1999) went on to say that to form and sustain communities, members needed access to one another; it is clear that CMC can provide this access. They conclude there are no “conceptual reasons or technical ones” (p.247) why CMC communities cannot be real. They suggested possible areas of advantage for CMC communities, through memory and retrieval systems for past interactions in the form of official or unofficial archives of discussions, as well as proposing that a third hybrid based on a combination of on and offline communities might be emerging in areas. This hybrid model could explain some of the features of online communities framed around electronic discussions. Within these, members share professional commonalities, e.g., groups of nurses, and that shared values from the offline component of the model might influence the online interaction; and, in the longer term, effects might be seen vice versa.

Schrum (1993) takes for granted the existence of online communities, although acknowledges the differing definitions of the term and forms such communities might take. She says that community must have a broad definition that encompasses the development of interaction, shared memories and even intimacy, through electronic networks. Such features are evident in many of the interactions on NURSENET. Hert (1997) takes a slightly different view and while acknowledging that communities can exist online, suggests that new communities are not created, but that pre-existing communities take advantage of the potential of the media. Komito (1998) also sees the idea of online, or virtual, communities as unproblematic, and suggests that any division between “real” and electronic communities is, in fact, artificial. He says that the issue of community is a background and that research on them, in terms of CMC, should focus on interactions within the group.

Bringelson and Carey (2000) discuss the nature of on-line professional communities and their ability to facilitate “communities of practice.” Advantages of such communities are seen to include collaborative learning and the building of knowledge, in particular through

...the opportunity for learning at several levels of richness: seeking solutions to technical questions, keeping up-to-date with recent advances, and extending the boundaries of collective knowledge. (p.58)

All of these are seen in NURSENET, through both the reflective discussion analysed in this study, and through other forms of discussion, interaction and information presentation that do not meet the criteria for reflection.

On the issue of “flames”, briefly introduced earlier in this chapter, and often seen as being potentially destructive to the development of online relationships and communities, Franco et al. (1995) take a different view. They suggest that, far from being necessarily

destructive, flames can, in some circumstances, lead to strengthened communities, and help to identify common values. They conclude that, while flame wars can cause distress, be divisive, and cause people to leave lists, (as seen on NURSENET and other lists),

...the flame is not entirely a destructive force. As with any source of tension, a flame can highlight specific issues ... forcing members of the community to deal with the issues. If the community finds a constructive way to deal with the divisiveness...then the flame can contribute to strengthening the community's structure and values. (p.21)

Aoki (1995) noted the US-centric nature of many global virtual communities in a study of the development of similar communities in Japan and with a Japanese focus. Ryan (1993), in an early study of discussion groups, said that, for 70% of her respondents, cultural differences have little or no impact on their online interactions.

Aoki (1995) also noted the existence of three types of community: ones that totally overlap with physical communities, ones that overlap to some degree, and those totally separated from physical communities, this latter form being based on anonymity, and often within online role-playing environments. Watson (1997) argues, from a perspective of ethnographic research conducted into CMC, that communities do exist, and can have powerful influences on offline aspects of the social reality with which the community interacts. Watson argues that community is not necessarily just "shared communication in the same physical space," (p.120) no shared space, but relationships. With this in mind, Watson argues, metaphors such as community can and must change over time with changing technologies and social relations.

Baym (1995) although grounding much of what she has to say in analysis of Usenet newsgroups, says that

...the distinct cultures that emerge in CMC are grounded in communicative practice. Community is generated through the interplay between existing

structures and the participants' strategic appropriation and exploitation of the resources and rules those structures offer in ongoing interaction. (p.139)

Baym supports the existence of communities and that "the creation of forms of expressive communication, identity, relationships, and norms through communicative practice in computer-mediated groups is pivotal to this process of creating communities." (p.161)

Such communities seem to bear similarities with Brookfield's (1986) informal learning networks. In discussing such networks, Brookfield suggests that they are

...groups of adults united by some common concern, some shared status, or some agreed-upon purpose that exchange information, ideas, skills, and knowledge among members and perform a number of functions having to do with problem solving and the creation of new modes of practice or new forms of knowledge.
(Brookfield, 1986, p.151).

These are networks which do not have certification or accreditation as their end, and which are not usually affiliated with educational institutions.

In drawing this section on online communities to a close, I mention one final study into listservs that presents an analysis of the benefits drawn from membership of such online communities, and the nature of those memberships. Rojo's (1995) doctoral research study, and Rojo and Ragsdale (1997), found common features among 12 listserv discussion forums. These included transient membership, users' preference for a broadcasting recipient role, and weak involvement in the exchange of messages. By transient membership, Rojo (1995) refers to movement in and out of forums, as people seek suitable ones for their needs, and a turnover of membership over time. By weak involvement in message exchange, Rojo refers to the phenomenon noted by many CMC researchers, and seen within this study, that most subscribers seldom or never contribute to the discussions.

The broadcasting recipient role identified by Rojo (1995) refers to one of three ways in which subscribers use online discussion forums. These were:

- fishing for information mode (i.e., obtaining information, keeping updated in their field); these people are broadcasting recipients, using the forum in a manner similar to that in which they might obtain information from television or radio, rarely contributing; this was the most frequently found mode;
- enjoying debate mode (subscribers participate in or listen to the exchange of ideas; most only listen, i.e., lurk); subscribers will sometimes contribute opinion or initiate discussions;
- social networking mode (the use of forums to network with others; use as an interactive medium); fewest use this mode.

Within the NURSENET forum, all three modes can be identified, and some of the issues identified by Rojo are explored within this study.

In addition to the specific papers discussed in this section, many of the authors in Jones' (1995a, 1997) collections of essays argue, in different ways, for the existence of communities, although their perspectives on the significance, meaning, etc. of such communities varies greatly. It seems then from the literature, that there is a widespread belief in, and research evidence for, the idea that communities can exist through entirely or primarily online interaction. This is the view that is adopted within this study, and some of the evidence emerging from the various data elements collected will be examined in confirmation of this view.

2.10 Chapter 2 summary

What, then, has this excursion into the literature on CMC shown? In particular, what has it illustrated in respect of some of the issues central to this study? I have, of necessity,

examined only a small selection of the vast and expanding literature on CMC, a literature whose emphases are changing over time with changing technologies and practices. The selection examined has been used to explore some of the issues most pertinent to aspects of the study.

One of the key issues discussed, through the presentation of the differing definitions of CMC and different forms of CMC, and through the examination of a small number of early studies, has been that results from one form of CMC can not necessarily be applied to all other forms. Nevertheless, many CMC researchers and writers have done this, although probably rarely with any intent to deceive, and certain myths have become established within both the scholarly and the popular consciousness regarding the nature of CMC interactions.

The movement from early experimental studies to studies grounded in real life groups and communities of users, albeit mainly within educational contexts, has provided some evidence to dispel these myths. I would not wish to deny, however, that in some forums, on some occasions, anti-social behaviour is exhibited; even within nursing forums.

The literature on nurses' use of CMC, and its dual situation within education and practice, has been explored and linked to current views on the nature of nursing informatics. This has demonstrated the legitimacy of CMC within nursing, and of the movement to practice-oriented explorations of the use of the medium.

Finally, the chapter explored some of the issues in the definition of online communities. The emerging consensus seems to be that many CMC researchers take this now as non-problematic; communities can and do exist and develop in online environments, and often

they overlap with offline communities, with the implications this has for two-way influences and exchanges. This exploration has been important not only of itself, but also to provide the context for the ethnographic nature of large elements of this study. The views of Schrum (1995) in particular, as well as the evidence of other researchers adopting similar approaches, has been important. As Schrum (1995) states, in justifying the development of new approaches, including electronic ethnographies, and other forms of investigation of electronic communities forged through the use of CMC, adaptation of some of the traditional, offline research tools, will be necessary. Some of these issues will be revisited in Chapter 4.

Herring (1996d) encapsulates many of the issues explored within this examination of the literature, stating that

CMC is not homogeneous, but like any other communicative modality, manifests itself in different styles and genres, some determined by the available technologies (e.g., real-time “chat” modes, as opposed to asynchronous email), others by human factors such as communicative purpose and group membership. (pp.3-4)

Having set the scene in terms of CMC, it is now time to move on to the other major strand of this study, reflective practice, and examine some of the literature from within and outside nursing, and some of the issues pertinent to this study.

Chapter 3

Reflections on reflection: a subversive text

As a registered nurse, midwife or health visitor, you are personally responsible for your practice and, in the exercise of your professional accountability, must...maintain and improve your professional knowledge and competence. UKCC (1992)

3.1 Introducing the discourse

The issues of reflective practice and lifelong learning, primarily for professional development purposes, are becoming increasingly important within nursing. Within the UK we seem to be in the position described by Burton (2000) whereby

...to reflect effectively and to practice reflectively are now requisite skills for all pre- and post-registration nurses, midwives and health visitors. (p.1010)

Reflection and reflective practice are issues not only in the UK, but also in many other countries, most notably Australia, which seems to have a longer history of embedding reflective practice within nursing education and practice. While reflective practice has, within the UK at least, become widely accepted as an essential part of nursing, it is not without its critics, from a range of perspectives. Wellard and Bethune (1996, p.1077), for example, have called it “a totalizing discourse which views reflective journaling as unproblematic.” Pierson (1998) believes that reflection is linked with the desire of nurse educators to encourage students to be critical and innovative in their thinking, and that it is seen to be an appropriate vehicle for the analysis of nursing practice. The apparently uncritical absorption with reflection has, however, not been universal. Recent concerns have been expressed (e.g., Wellard and Bethune, 1996; Mackintosh, 1998) as to whether true reflection can and does occur, and whether nurses, especially students, can really be reflective and institute changes in practice.

The literature on reflective practice within nursing, from both the proponents and those who raise questions and concerns, will be the prime focus of this chapter. Within the examination of this literature, the discussion will, of necessity, not take a linear course, but will ebb and flow, back and forth, between the nursing and the non-nursing literature. I will, in a manner akin to the cyclical nursing process (Murray and Lavery, 1997) and the spiral curriculum of Steinaker and Bell (1979), commonly used within nurse education, build on the previous discussions to introduce additional perspectives.

3.2 Professional development and lifelong learning

While it is impossible to utilise knowledge that is not possessed, it is quite possible to possess knowledge that is not utilised. Warmuth (1987)

Within nursing, as within many other professions, it has been increasingly recognized that continuing professional education must, of necessity, be closely linked to the nature of professional practice. It is an oft-repeated truism that the only constant within nursing is change, and it is certainly the case that in recent years, with the impact of internal and external forces, change within nursing has been continuous and substantial. One of the most important changes has been the move towards a reasonably high proportion of nurses having Internet access, at work and/or at home, especially in the more developed parts of the world, such as the USA, Canada, Australia and Europe.

These changes have meant that the nature of professional practice has had to respond to, or where possible anticipate, many other changes within the health services and within society. It has also resulted in the view within the nursing professions in many countries that nurses need to continually update their professional practice. The work of Schön (1983, 1992/84) has been central to developments in these areas, especially his assertions that reflection-in-action is the real core of professional practice, but has rarely been

accepted as a legitimate form of professional knowing. Schön's work on reflection is among the most widely cited within the nursing literature, and will be discussed in detail in this chapter.

Schön's views seem to be congruent with Benner's (1984) work on the expert using intuition. Schön (1992/84) states that:

...the artistic processes by which practitioners sometimes make sense of unique cases, and the art they sometimes bring to everyday practice, do not meet the prevailing criteria of rigorous practice....By defining rigor only in terms of technical rationality, we exclude as non-rigorous much of what competent practitioners actually do, including the skilful performance of problem-setting and judgement...indeed, we exclude the most important components of competent practice. (p.54)

While not from within the nursing literature, this new approach to professional education is exemplified by Lester's (1995) discussion of the nature of competence. Lester (1995) could almost be writing about the current context of nursing, when he talks of the need for practitioners increasingly to respond to unknown situations. This moves professional practice beyond a traditional view wherein

...it involves applying a body of expert knowledge to known situations in order to produce rational solutions to problems. (p.44).

Instead, he suggests that professional practitioners need to

...be able to construct and reconstruct...knowledge and skill...and continually evolve their practice...based on processes of reflecting... (p.44)

Lester sees the need for a new paradigm for professional practice and professional learning, based in critical reflection and constructivist approaches to the generation of knowledge. He also acknowledges this as being potentially threatening, as it challenges the current notions of professional identity, through shifting

...the responsibility for defining acceptable professional behaviour and competence from the profession as a whole to the individual practitioner in negotiation...[and]...questions current notions of professional boundaries. (p.45)

This view is congruent with that expressed by the UK statutory body regulating professional issues, the UKCC, as exemplified in the epigraph at the head of this chapter.

While acknowledging that reflection need not necessarily be a critical process, but may be simply a surface consideration which leaves nothing unchanged, Lester strongly advocates the need to move to such a critical attitude to practice and to theory, akin to Kemmis' (1985) view of reflection. Through such an approach, Lester sees learning as, of necessity, embedded in practice, with the distinction between work and learning transcended in such a way that continuous, lifelong learning is the norm.

Within the discussion of continuing professional education for nurses, Maggs (1996) has exerted considerable influence on the current nature of nurse education and in particular continuing education within the UK. He highlights the responsibility placed on the individual practitioner and the importance of self-direction of professional development (albeit within the regulatory frameworks) by both the American Nurses' Association (ANA) and the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UKCC), the two ~~respective~~ statutory regulatory bodies. Hogston (1995) also notes the convergence of definitions of continuing professional education between the two bodies. In defining continuing professional education, Maggs (1996) describes it as

...the term used to encompass those teaching and learning activities, including open and experiential learning, which follow registration and are directed towards improving the quality of care provided to the public. (pp.98-99)

He states that although it may take different forms at different points within a professional's career lifetime, it never ceases; i.e., although not in such words, he is

discussing lifelong learning. Within this study, I have taken a wider view on continuing professional education, to include the informal components that Maggs' and others' definitions do not explicitly include. Within such education, the importance of reflection has already been introduced, and so it is now necessary to turn to a detailed examination of reflection from without and within the nursing literature.

3.3 Practising reflection in and on action

3.3.1 Nursing's reliance on Schön

Much of the current nursing literature dealing with reflection is based primarily in the work of Schön (1983), although Boud, Keogh and Walker (1985) and Mezirow (1981) are frequently cited influences. Many nursing authors seem to take reflection for granted (Mackintosh, 1998) and assume it to be beneficial, but with still little evidence of any evaluation of benefits to practice. There is an almost uncritical translation of Schön's work into nursing, although, there has been something of a recent backlash as questions have been raised as to what forms of reflection nurses can achieve, within what contexts, and whether reflection ever truly occurs, let alone changes the nature of practice. These strands of the literature are important when seeking to examine whether the use of CMC can act as any kind of vehicle for reflection in the context of nursing practice and education.

This consideration of the literature on reflection and reflective practice begins with two sections dealing with the general literature. The first focuses on Schön's work, describing his two modes of reflection, i.e., reflection-on-action and reflection-in-action. There follows an introduction to the nursing literature on reflection, encompassing that which

advocates and supports the necessity of reflection within nursing education and practice, as well as the recent, more critical, stances adopted.

3.3.2 Schön on reflection

Schön's work seems to have had, judging by the frequency of citation, great influence on the development of the concept and practice of reflection within nursing. In his classic work, *The Reflective Practitioner*, Schön (1983) describes essentially two ways in which professionals reflect, i.e., reflection-on-action and reflection-in-action. Schön considers the latter to be the higher-order skill, i.e., to reflect while doing something rather than to think about it afterwards. In most of the nursing literature, however, what has been advocated for nurses seems to be the lower-order reflection-on-action, reflecting after the event. One criticism from the nursing literature is that of Greenwood (1993) who states that Schön fails to adequately address reflection-before-action, the processes of seeking to anticipate and pre-empt problems. In similar vein, Marks-Maran and Rose (1997) discuss reflection-before-action, as well as using slightly different terms, i.e., reflection-during-action and reflection-after-action to describe reflection-in-action and reflection-on-action respectively.

Most of what Schön discusses in *The Reflective Practitioner* is reflection-in-action, with hardly a mention of reflection-on-action (which rates only three references in the book's index). Schön's focus on reflection-in-action contrasts it with Technical Rationality, which he believes has, in the past, shaped professional thought, action and perception, and which "consists in instrumental problem solving made rigorous by the application of scientific theory and technique." (Schön, 1983, p.21) This is akin to Lester's (1995) critique, discussed earlier.

In The crisis of professional knowledge and the pursuit of an epistemology of practice, Schön (1992/84) presents reflection-in-action as central to professional practice. He criticises what he sees as the dominant model of professions and professional practice, and its basis within a positivist approach to science and the development of research-based knowledge. He suggests that this dominant epistemology fails to address the real problems encountered by practitioners. He also discusses the predicament of trying to reconcile the artistry of practice with striving towards a positivist model of professionalism, an issue with echoes of the well-rehearsed, but unresolved, debates around whether nursing is an art or a science (e.g., Brink, 1993; Rogers, 1988; Rose and Parker, 1994). The Technical Rationality approach to professional practice criticised by Schön (1983), and that he contrasts with a reflection-in-action approach, seems mirrored within nursing. The introduction and widespread adoption of the problem-solving approach known as the nursing process (Christensen and Kenney, 1995; Yura and Walsh, 1988), which, at least in its early forms, could be described as a quintessential application of Technical Rationality, seemed to define the view of the time of the nursing profession's view of professional practice. Some nurses now seem to be moving to a different view of professional practice, more in keeping with the views of Schön, Lester and others. The discussion within Schön's paper also has almost prescient echoes of other current issues and debates within nursing, in particular around whether the move of nurse education in the UK into the higher education sector was appropriate or should be reversed.

In Schön's interpretation, the minor professions, within which he includes social work and teaching (and today would almost certainly include nursing) are caught in a predicament of attempting to emulate the positivist rigour and scientific knowledge base of the major professions (e.g., medicine, law). They had, he stated, moved into the higher education system in an attempt to match the success of the major professions and

...tried to substitute a basis in scientific knowledge for their traditional reliance on experienced practice. (Schön, 1992/84, p.52)

Schön was writing here in the early 1980's, within the context of the American systems of education and professions, but could just have easily been writing about the recent and current debates within the UK.

Within discussion of professional practice, Schön introduces the issues of uncertainty and complexity in practice issues, before going on to discuss reflection-in-action. It is in this discussion that his famous quote about the swampy lowlands and technical high ground, introduced in chapter 1 and repeated here, is written:

In the varied topography of professional practice, there is a high, hard ground which overlooks a swamp. On the high ground, manageable problems lend themselves to solution through the use of research-based theory and technique. In the swampy lowlands, problems are messy and confusing and incapable of technical solution. The irony of this situation is that the problems of the high ground tend to be relatively unimportant to individuals or to society at large, however great their technical interest may be, while in the swamp lie the problems of greatest human concern. (Schön, 1992/84, p.54)

Again, this has echoes within discussions in nursing practice, education, research and theory development, with some of the almost schizophrenic attitudes that have existed. Nurses have been moving towards accepting a holistic view of the individual and the need for approaches to care to take account of the multitude of factors involved. At the same time, research has often attempted, through positivist paradigms and reductionist methods, to isolate a few factors amenable to technical research methods.

What Schön says about the nature of professional practice in the foregoing discussion is similar to Day's (1993) exploration within the UK context of teaching and teacher education. Having outlined Schön's work, and highlighted some of the issues which will

be further addressed in discussion of the nursing literature, it is now time to begin consideration of nursing's use of the concepts.

3.3.3 Reflecting in and on action – what are nurses doing?

It is clear that, in Schön's original work, he focuses on reflection-IN-action, rather than reflection-ON-action (*my emphases*). This is apparent even from a brief examination of the numbers of pages devoted to, and the number of citations in the index of, the former as opposed to the latter. Given the frequency with which nurses writing on the issue of reflection focus on reflection-on-action, i.e., after the event, rather than reflection-in-action, quasi-contemporaneously with the events, it might seem rather strange that Schön's work should have such an influence.

Nurses discussing reflection tend to give brief overviews of the two processes of reflection-in-action and reflection-on-action, and if the issue is explored at all, there is a tendency to view it as a simple matter of temporal separation and not explore the issues further. Fitzgerald and Chapman (2000) describe reflection-in-action as a process in which "the practitioner recognises a new situation or problem and thinks about it while still acting." (p.5) This view seems congruent with Schön's description. They go on to describe reflection-on-action as

...the retrospective contemplation of practice undertaken in order to uncover the knowledge used in a particular situation, by analysing and interpreting the information recalled. The reflective practitioner may speculate how the situation might have been handled differently and what other knowledge would have been helpful. (pp.5-6)

It is difficult to judge whether this is congruent with Schön's view, although he does warn of the possibility of "an infinite regress of reflection on action, then on our reflection on action, and so on ad infinitum." (Schön, 1983, p.277)

These descriptions and definitions are similar to those given by Cox, Hickson and Taylor (1991) of reflection-in-action being a reflection on events as they daily unfold, providing insights to guide action, while reflection-on-action is

...that which occurs later, looking back over the events of the day, in an endeavour to make sense of why we chose the action we did. (p.382)

Most of the nursing literature, in discussing reflection and reflective practice, seems to focus on reflection-on-action. Whether the terms used represent a misapplication by nursing of Schön's work, or whether they represent a reflective appraisal and application of his work within a different professional context to the ones he considered remains to be resolved. It is a set of issues that merits close examination within a context other than this study, although some attempts will be made at appropriate points to explore aspects of the issues.

3.4 Nursing's love affair with reflection

3.4.1 A modern nursing orthodoxy?

The English National Board for Nursing, Midwifery and Health Visiting (ENB) is one of the four national statutory bodies with responsibility for educational standards, and whose influence was addressed above in discussing lifelong learning. In their publication *Creating lifelong learners: partnerships for care* (ENB, 1994), they provide an unequivocal commitment to reflection when they state that reflective practice is

...fundamental to nursing...[and its]...professional education... Reflection in and on practice is an essential component...and qualified practitioners continue to develop the skills of reflective practice through continuing education. (p.13)

Reid (1993) describes reflective practice within nursing as

...a process of reviewing an experience of practice in order to describe, analyse and evaluate and so inform learning from practice. (p.305)

However, while reflection is, at least at the policy level, a mainstream component of both pre- and post-registration educational courses and is expected of all qualified nurses (Burton, 2000), some recent literature questions its uncritical adoption and the unproven nature of its proposed benefits. This critique is similar to that expressed by Day (1993) in respect of reflection within the teaching profession.

This consideration of the nursing literature on reflection will start from a general overview of the benefits proposed, before moving to consider the more recent literature that questions not only the implementation, but also some of the underlying philosophies. This will then lead to a summary of the main issues from the literatures on reflection and CMC to show how the main subject area for this thesis is grounded in issues arising from the two.

3.4.2 The importance of being reflective

While the literature on reflection and reflective practice coming from the USA is less rich than that from the UK, Canada and Australia (the USA literature contains more references to critical thinking), many nurses write of the universal acceptance (at least within developed Western, primarily English-speaking) of reflective practice. Most nurses writing about reflection acknowledge the influence of Schön (1983), although his views have often been adopted uncritically, with no apparent consideration of possible differences in cultural contexts.

Atkins and Murphy (1993, 1994) acknowledge that the concept of reflection lacks clarity, and there is an absence of definition, issues also explored by Clinton (1998). This leads to questions of whether the different authors whose work forms the basis of nursing's approach to reflection share any common meaning or understanding of the term. This

issue is discussed in some depth by Mackintosh (1998), who after a critical analysis of the works of Dewey, Mezirow and Schön concludes that there is no clear definition of, or implementation framework for, reflective practice within nursing. Others, including Carr (1996), who suggests Carper's (1978) "patterns of knowing" as a framework, make similar critiques of lack of definition. Much of the nursing literature seems to view the work of these three founding fathers as sufficiently similar or interchangeable. Often there seems to be a conflation with Boud, Keogh and Walker's (1985) work, with occasionally Kolb's (1975) work on experiential learning incorporated. An example of this is Glen, Clark and Nicol's (1995) superimposition of Schön's ladder of reflection on Kolb's (1975) experiential learning cycle. Mackintosh (1998) is not convinced that Dewey's "reflective thinking", Mezirow's "reflectivity" and Schön's "reflective practice" have sufficient similarity to be used in this way. She concludes that reflection in nursing may be no more than one of many passing fads, and that its current adoption, within both education and professional development, has serious flaws, being of unproven benefit to the development of professional practice. Mackintosh (1998) seems to believe that a single definition and/or framework is necessary and desirable, a view also put forward by Pierson (1998).

Mackintosh's (1998) critique will be revisited later in consideration of the development of tools to facilitate reflection. My own view would be that such attempts to develop a single model, theory, framework or approach to the use of reflection within nursing. Are flawed and cannot account for the variability of approaches needed in different practice situations on the offline world, let alone account for different communication modes in the online world of virtual communities.

To return to the rationale for reflection within nursing, and the benefits propounded, Clarke, James and Kelly (1996) discuss the features of nursing as a profession within the context of Schön's work. Schön (1983) is credited as indicating a number of features of professions, including that:

- problems are messy, complex, no right/wrong answers;
- knowledge is broad and multifaceted;
- context is important;
- we cannot just think of skills;
- knowledge is difficult to articulate.

In discussing Schön's two types of reflection, Clarke, James and Kelly (1996) do appear to conflate the two forms and create some degree of confusion. Perhaps they recognize the difficulties themselves in suggesting that reflection-in-action is under-researched, when, with an almost verbal sleight of hand, they state that:

Schön's distinction between reflecting in and on action can mistakenly give the impression that reflecting on action only happens after practice. A better way of considering the distinction is to view reflecting on action as that reflection which takes place outside the reflection occurring during the moment of acting.
(Clarke, James and Kelly, 1996, pp.173-4)

They suggest four areas wherein nurses might reflect:

- technical aspects of practice, resulting in improved efficiency/effectiveness;
- practical aspects of practice, which considers appropriateness of actions;
- social/political/economic context; and
- nurses' knowledge of self.

As areas wherein nurses might reflect have been identified, it is appropriate to move on to consideration of how that reflection might be undertaken. The next sections examine some of the models and frameworks proposed, beginning with some from outside nursing before considering those developed specifically within the nursing literature.

3.5 From rhetoric to models and frameworks for reflection

In the same way that Schön's discussion of professions had echoes of the nursing context, an early 1990's UK discussion of reflection within the domain of teaching bears a striking resemblance to the situation within nursing in the late 1990's. Day (1993), in discussing teachers and teaching, provides an account of many of the issues around reflection, suggesting that it must be tied in with challenging organisational cultures if it is to succeed in producing genuine changes to practice. Similarly, the work of Kemmis (1985) strongly advocates reflection resulting in change, the alternative being an infinite regress of internal speculation and inactivity such as Schön (1983) cautioned against. The ability of nursing and nurses to institute change as a result of reflection has generated some debate (e.g., Driscoll, 1994), with the general view being expressed that change does not (yet) occur as a result of reflection, and perhaps will occur only infrequently. This literature, however, only discusses reflection within offline environments; this study demonstrates the potential and examples of change occurring through reflection in CMC environments.

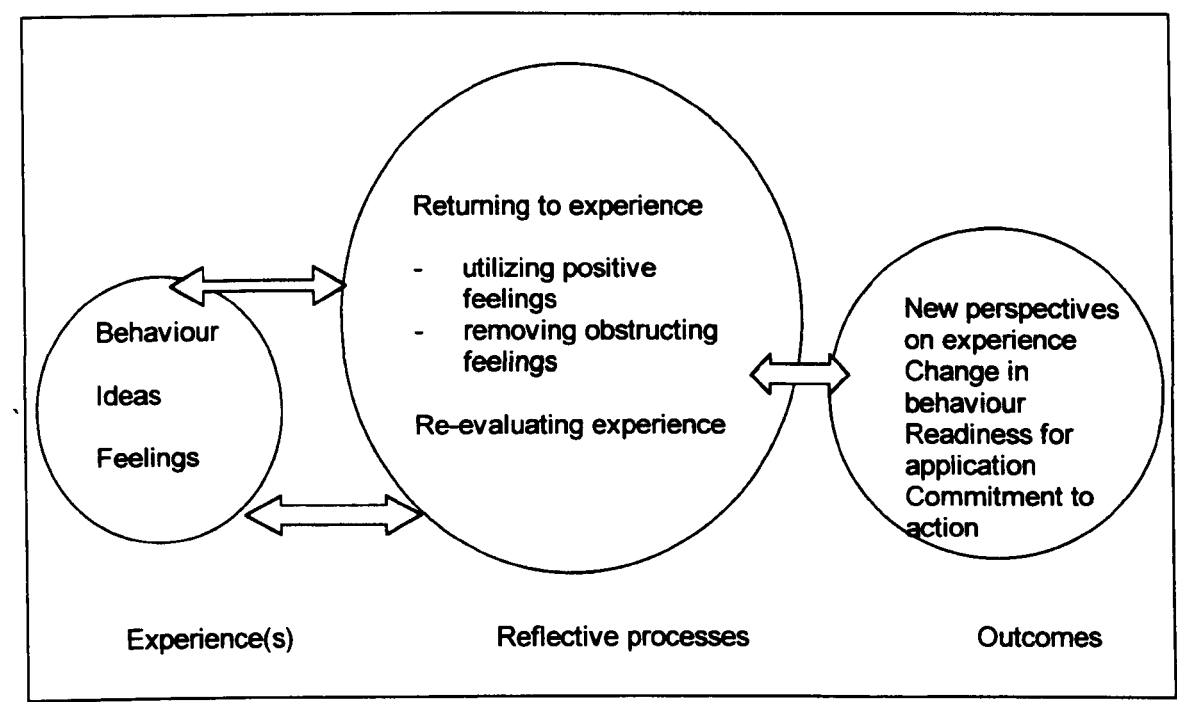
Schön (1992/1984) describes not so much a model or framework, but what he terms a process for reflection, with "moments" of such a process, comprising

- the performer of a task spontaneously initiates a routine of action that produces an unexpected outcome;
- the unexpected result surprises the performer; he examines whether it is an error that needs correction, an anomaly to be made sense of, or an exploitable opportunity;
- reflection resulting from this surprise triggers reflection;
- the performer restructures his understanding of the situation and changes how he frames the problem or his strategy for dealing with the task or event;
- devising a new strategy of action as a result of this restructuring; and
- the performer tests out the new action.

These process moments are reiterated in differing guises in much of the work of other writers describing elements of models and frameworks for reflection. All begin with some

kind of activity or issue that produces an outcome that may be unexpected, or in some other way worthy of consideration, rather than being routine or unremarkable. Thus, Boud, Keogh and Walker (1985) produce a diagrammatic representation (Figure 3.1) containing many elements similar to Schön's.

Figure 3.1 The reflective process in context (after Boud, Keogh and Walker, 1985, fig. 3, p.36).



Mezirow (1981) takes a slightly different approach, producing “levels of reflectivity”. His work seems to have been influential in both the general literature on reflection (e.g., Boud, Keogh and Walker, 1985) and the nursing literature (e.g., Atkins and Murphy, 1994). While his work is often cited within nursing, it is in the work of Johns (1995a, b) that it seems to have been explicitly developed.

Mezirow’s (1981) work, based on Habermas, looked at adult learning, and focused on critical reflectivity. He identified seven levels of reflectivity, with the earlier ones (1-4) based in ordinary consciousness and latter ones (5-6) based in critical consciousness, before a final, and highest, level central to perspective transformation:

1. Reflectivity – becoming aware of a specific perception, meaning or behaviour, or of the routines or habits we have for seeing, thinking and acting;
2. Affective reflectivity – becoming aware of how we feel about the ways in which we perceive, think about or acting on issues or events;
3. Discriminant reflectivity – assessing the efficacy of our perceptions, thoughts, actions and ways of doing things; identifying immediate causes; recognizing the reality of the contexts in which we work or function and identifying our relationships to the situation;
4. Judgemental reflectivity – becoming aware of our value judgements about our perceptions, thoughts, habits and actions, in terms of their being liked or disliked, positive or negative;
5. Conceptual reflectivity – becoming conscious of our awareness and critiquing it; questioning the constructs we use in evaluating another person or a situation;
6. Psychic reflectivity – recognizing our ways of making precipitant judgements about people on the basis of limited information; recognizing the interests and anticipations which influence the way we perceive, think or act;
7. Theoretical reflectivity – becoming aware of the influence of underlying assumptions upon our judgements; becoming aware of the reasons for a precipitant judgement.

In summarising the literature on reflection in teaching that existed in 1993, Day could almost have been writing about nursing at the turn of the millennium, indicating that there exists much rhetoric on reflection, but little in the way of practical materials. FitzGerald and Chapman (2000), from the nursing perspective, note that much of the literature is theoretical “or frankly anecdotal and beginning to be repetitive.” (p.20) Day (1993) concludes that we know very little about how decisions are made based on reflection or how to judge the quality of decisions that are made, i.e., we don’t know how (or if) reflection leads to change. Day does, however, provide a useful description of the attributes of the reflective practitioner (in this case, the teacher), and of models of levels of reflective practice, some of which are also discussed in the nursing literature.

Day (1993) describes the research of Copeland et al. (1991), identifying four “critical attributes of reflection” which form the operational definition of the reflective teacher:

- (i) engaging in reflective practice involves the process of solving problems and reconstructing meaning;
- (ii) reflective practice in teaching is manifested as a stance towards inquiry;
- (iii) the demonstration of reflective practice is seen to exist along a continuum or “reflective spectrum”; and
- (iv) reflective practice occurs within a social context. (Day, 1993, p.84)

Day (1993, p.86) also describes Griffiths and Tann’s (1991) five level model of reflective practice, comprising:

1. rapid reaction (instinctive, immediate);
2. repair (habitual, pause for thought, fast, on the spot);
3. review (time out to re-assess, over hours or days);
4. research (systematic, sharply focused, over weeks or months);
5. re-theorize and re-formulate (abstract, rigorous, clearly formulated).

The general tenor of Day’s discussion of teachers’ reflection and reflective practice seems consistent with the new forms of professionalism suggested by Lester, Schön and others, and already discussed.

Sumison and Fleet (1996) also note the difficulties of assessing reflection (and by implication demonstrating evidence of its development). While their work was outside of nursing, and with teachers, they concluded that:

- Reflection is not suited to quantitative measurement, due to the high degree of interpretation and lack of consistency between coders using instruments;
- Rating scales tend to be simplistic, due to their need to be easy to use, and “may be unable to provide many insights into the complex nature of reflection” (p.128);
- It is possible to be reflective without being academically able; so reliance on written academic measures of demonstrating reflection are too narrow.

They conclude that:

Given current methodological and pragmatic limitations, the assessment of reflection raises complex issues of consistency and equity...hence those committed to the preparation of professionals through an emphasis on reflective practice are in a difficult position. (p.128)

A number of models then exist from outside the nursing literature, from Schön's own process, through the general model of Boud, Keogh and Walker (1985) and the work of Mezirow, to others specifically developed or applied within the teaching profession. It is now time to consider some models developed within nursing, and examine how work from outside nursing has specifically influenced those models.

3.6 Models, outputs and implications of reflection in nursing

3.6.1 Where have all the models gone?

Having introduced the idea of models or frameworks for the processes of reflection, I now return to consider some more of the nursing literature, due to the direct relevance the use of models and frameworks, and the difficulties of finding a suitable one, have in relation to this research. I take the view that, despite the amount of nursing literature that exists on reflection, there has been remarkably little work on developing detailed models of how it could be, should be, or is undertaken. There is even less reported research on the applicability or validity of such models and frameworks as have been developed.

FitzGerald and Chapman (2000) provide one of several critiques of the lack of research into reflection within nursing. They state that it is understandable that there should have been no large-scale evaluative studies into the effectiveness of reflection as a technique for learning, as it didn't fit into the political climate where funding was usually directed at health outcomes. Whether this is a valid argument is open to debate as they were

discussing the UK context in particular, yet we see the same lack of research from around the world. They state that such research as does exist tends to be

...made up of disparate, usually small, studies that do not add up to a substantial body of evidence to guide the profession. (p.20)

This argument seems to betray a positivist attitude and approach to what they see as the best type of research. They also say that such research as exists tends to be small-scale, looking at students' or teachers' perspectives (in formal education settings, often pre-registration), identifying processes for teaching and facilitating reflection, and that few studies exist looking at changes in students' abilities to reflect, or on patient outcomes. This latter point is one also strongly made by Andrews, Gidman and Humphreys (1998), who question whether, despite the enormous investment of time and energies in teaching reflection within nursing courses, there is any evidence for this resulting in practice development or improvements in patient care or outcomes. This issue is important in the context of this research as the data to be presented in the analysis of the discussion threads suggests that some evidence of changes can, in fact, be provided.

Page and Meerabeau (2000), in discussing the 'closing the loop', wherein change results from the learning that takes within reflection note the potential for organisational and other resistance to change, and suggest that great efforts are required from the nurse as a change agent. They go on to suggest that planning for change should be part of the reflective cycle.

Bulman (2000) views frameworks for reflection within nursing as useful, but not necessary. A number of frameworks are described in Burns and Bulman (2000), to be used extant or that can be adopted/adapted. Bulman (2000) does, however, caution that

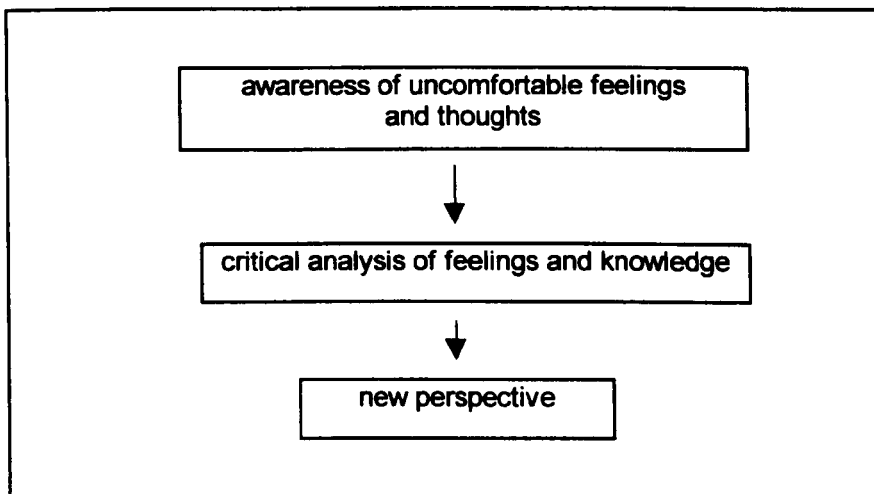
...since reflection is not a static process but a dynamic one it is appropriate to include a framework with an overt cyclical approach. (p.177)

This is an important issue, not often discussed in the literature, and which has relevance to the development and description of my own model.

3.6.2 Models for reflection in nursing

Many of the authors exploring reflective practice seek to provide or develop models to explain the processes, or to identify the skills needed by the reflective practitioner. Atkins and Murphy (1993) provide one such model, which seems to be (and here we should recall Mackintosh's (1998) critique) drawn from aspects of the work of Mezirow, Schön and Boud, Keogh and Walker. In their model (Figure 3.2), reflection starts from an

Figure 3.2 Model of reflective processes (after Atkins and Murphy, 1993, fig. 1, p. 1190).



awareness of insufficient knowledge to explain or apply to practice situations. It then moves through a critical appraisal and analysis of the thoughts, feelings and knowledge deficit, and concludes with a new perspective on the practice situation, with the final outcome being some form of learning. They go on to indicate skills necessary for the implementation of this model, these being:

- self-awareness - ability to recognize and analyse the thoughts and feelings;
- description - the situation which resulted in the awareness of a need for reflection;

- critical analysis - to explore the knowledge deficit;
- synthesis - to integrate relevant new knowledge with the practice situation;
- evaluation - to judge the effectiveness of integrating the new knowledge.

Getliffe (1996) provides a potential model for analysing the levels of reflection demonstrated in analysis of critical incidents with second year undergraduate nursing students in the UK. She describes the use of a Reflective Index, originally developed for use by student teachers and not, she states, validated for use with healthcare students, but which she believes demonstrates simplicity and face validity. This model uses a hierarchy of four domains to categorise statements from students' reflective journals:

- Factual (lowest level) - refers to incidents that have occurred;
- Prudential - evaluates actions for effect, and/or suggests alternative actions;
- Justificatory - focuses on reasons why certain actions occurred, or why alternative actions would be suitable;
- Critical - makes reference to values, beliefs, or assumptions underlying the reasons given to support actions or their proposed alternatives.

Getliffe's study found that students were able to progress from their journals predominantly demonstrating levels 1 and 2 (factual and prudential) in the early stages of their course to demonstrating critical thinking at level 4 at a later stage. They were, however, wary of showing evidence of critical thought in larger groups of peers.

Astor, Jefferson and Humphrys (1998) also demonstrate the use of a framework based in Mezirow's levels of reflection and discuss its use in learning disability and mental health nursing. Akin to Mackintosh (1998), they seem to advocate the development of a single "right way" to develop reflection although, without citing his work, they also suggest the need for a wider social context akin to that advocated by Kemmis. Greenwood (1998) provides a summary of models and frameworks for reflection within nursing, from which

it is apparent how little the most recent nursing frameworks differ from the ones originally put forward by Schön and others nearly 20 years ago.

One of the aspects described by Greenwood (1998) is Johns' (1995b) work, used within this study, but not yet described. A detailed discussion of the work of Johns (1995b) and Kim (1999), which form the basis of the models used in the analysis of the discussion threads, is reserved for presentation in Chapter 6.

Having considered some of the general features of reflection within nursing, and briefly examined some of the models proposed, it is appropriate to now consider the outputs of the process of reflection. These outputs are in terms of both the qualities of the professional and the nature of proposed or actual changes in practice. The next section also addresses the issue of critical thinking and its relationship with reflection.

3.7 Reflection and critical thinking

3.7.1 What is the output of reflection?

In considering the outcomes or output of reflective processes, it becomes apparent that the literature identifies two areas: the nature or qualities of the person, i.e., the reflective practitioner, and the nature of any changes in practice. While these two types of output/outcome would seem to be necessarily interlinked, the separation between them in some of the more recent literature makes this an important separation to consider.

In their review of the then extant literature, Atkins and Murphy (1993) suggest that the skills needed in reflection are self-awareness, description, critical analysis, synthesis and evaluation. They continue by saying that reflection “must involve the self and must lead to

a changed perspective” (p.1191) and that it is this that distinguishes reflection from analysis. This approach echoes the more general work cited earlier of Johnston and Badley (1996), who saw one of the main outcomes of the reflective process being not so much changes in behaviour (as evidenced by competence) but “the acquisition of a critical stance or attitude to one’s own practice.” (p.4) However, another issue raised by Johnston and Badley (1996) is also exposed by Burrows (1995), who warns of the possible dangers of challenging assumptions and values, so disturbing the comfort of ritualistic practice, through exposing uncertainty and possibly even poor practice.

However, having a reflective or critical stance or mindset does not necessarily mean that this is translated into one’s everyday practice, nor have any effect on the daily practice of one’s profession. This point has been made by a number of nurses writing in the field.

Pierson (1998), for example, notes that there is

...no documentation within the reviewed literature related to actual outcomes of reflection. There is also no suggestion that those who reflect function differently as practitioners. These continue to be important questions for nurse educators to consider. (p.169)

Glen, Clark and Nicol (1995), using reflective tutorials within an assessment framework also explore the reality of any link between the ability to reflect and the impact on practice. Jones (1995) warns of the danger of hindsight biasing the results when attempting to explore the outcomes of reflection.

Noting the existence of an abundance of rhetorical literature on reflection, but a dearth of practical and implementation advice, Glen, Clark and Nicol (1995) discuss a range of models and strategies for reflection, as well as its use within summative assessment.

Ultimately, though, they provide few answers to the questions they raise, although they speculate as to whether the theory-practice gap might be perpetuated by a mismatch

between academic teaching of the need for reflection and evidence of clinical reality. In pondering whether all practitioners have the necessary skills to facilitate student learning, they echo the concerns raised by Carr (1996) who says that reflection requires or suggests a high level of professional maturity and commitment to practice improvement. Again returning to the theory-practice gap, Carr (1996) makes the observation that, in much of nursing, while both sides bemoan its existence, it seems that while academia often seeks to influence practice, the reverse is rare. Driscoll (1994) makes the same point, suggesting that reflective practice has the potential to modify existing practice, but that paradoxically, if taught by academia rather than owned by practitioners, may be simply seen as another example of the theory-practice gap. Haddock (1997) also states that any benefit to patients of reflection on practice, and any supposed subsequent improvements in practice, have yet to be shown.

Davies and Sharp (2000) discuss the assessment of the outcomes of reflection, stating that while it is a key question, it is not well addressed in the literature, with one possible reason being the lack of acceptable methods to assess whether or not reflection takes place. They outline the reflective elements used in the grading criteria at one School of Nursing, which include analysis of thoughts and feelings, description of the situation, and evidence of personal and professional development, with implications for practice. These three areas are similar to those proposed in a number of frameworks for reflection, and match aspects of both Kim's (1999) and Johns' (1995b) work used in this study.

Davies and Sharp (2000) go on to summarise, from their examination of the literature, what they perceive to be the problems with assessing reflection (Figure 3.3). They also identify issues that need further consideration (and by implication research) in respect of evaluating reflection; these include:

- Identifying strategies that pinpoint practice developments as a result of reflection rather than other influential variables;
- Identifying methods that show actual changes in practice as opposed to perceptions of changes in practice;
- Whether patient outcomes and perspectives could be incorporated into evaluation strategies;
- Need for longitudinal studies to monitor long-term effects and benefits of reflection on individual practitioners and their practice.

Figure 3.3 Problems with assessing reflection (after Davies and Sharp, 2000, fig 3.3, p.71).

Lack of available tools.

Lack of clarity in what is to be assessed, in processes, or in outcomes.

Differing opinions as to stages within reflective process.

Overlap in use/meaning of terms reflective practice, critical thinking, reflective learning, critical analysis.

Complexity of reflective processes, especially for new students.

Problems with assessment of reflection; honesty of reflection may be compromised by assessment; issues of patient confidentiality.

Time-consuming nature of reflection, and of learning about it.

One of the few studies to date, which may go some way to addressing the above issues, is that of Dearmun (2000), who in a small-scale study examined the continued effects in the post-qualification phase of nurses who had been exposed to reflection within their pre-registration education. Dearmun (2000) found some evidence, from her longitudinal approach, of critical approaches to practice and nurses challenging the *status quo* and existing practice, although also of others taking a more personal, internalised approach. Nurses within her study did seem to be attempting to integrate theory and practice, and to seek out evidence in relation to their desires to change practice, and there seemed to be a positive effect on the amount of self-directed learning and professional development.

Powell's (1989) study of registered nurses also found evidence of reflection leading to learning, but generally at the lower of Mezirow's levels. While learning is evidenced, it is unclear whether this translated into changes in practice. Richardson and Maltby (1995), in a study of student nurses and using the tools developed by Powell, also found evidence of reflection, but within the lower of Mezirow's levels. This study was a *post hoc* examination of students' reflective diaries, while Powell conducted interviews immediately after observing the nurses in practice, so was closer to reflection-in-action, even though undertaken after the practice events.

As was indicated earlier, there is comparatively little literature from the US on reflective practice, and more on critical thinking. At this point, it is useful to consider why this might be, and whether they might be seen as the same.

3.7.2 Is reflection the same as critical thinking?

Given the high levels of exchange of nursing literature between North America and the UK, there seems to have been no examination of the reasons why reflective practice should feature so strongly within UK nursing and literature, and so little within that from North America. The reverse tends to be true of the literature on critical reflection, although to a less strong extent. From the US side, one of the few papers that makes any mention of reflective practice comes from Brown and Sorrell (1993), who discuss the use of clinical journals in critical thinking. They discuss the differences between critical and analytic thinking, and the use of journals (a common tool to be discussed later) to allow students to think aloud about their practice. From the UK perspective, critical thinking skills seem to be one part of the range of skills that the practitioner must develop to enable reflection. This apparent mismatch in the literature was explored in the interviews conducted with questionnaire respondents (section 5.6).

Atkins (2000), discussing the relationship between critical thinking and reflective practice, says that some of terms are used interchangeably and may result in confusion (e.g., critical reflection, critical thinking). She sees critical thinking as often being conducted in a rational and linear-thinking manner, but says that it also has a more affective component, more akin to modern nursing and nurse education, as exemplified in work of Brookfield and others. Without explicitly saying so, she seems to see critical thinking as part of reflective practice, although then also acknowledges that it can stand alone. She goes on to discuss Brookfield (1987), who sees identifying and challenging of assumptions, imagining and exploring alternative ways of thinking and doing as “key activities undertaken during the critical analysis phase of a reflective cycle or process.” (p.30) These aspects have congruence with some of Mezirow’s levels and with Kemmis’ views on the purposes of reflection. Atkins concludes that

...although the processes of reflective practice and critical thinking are similar, the term reflective practice does convey an approach to professional practice which is not only concerned with thinking, but also with the acknowledgement of feelings and with activity that makes a positive difference to practice. (p.30)

Daly (1998) provides a framework that, while not specifying a relationship between the two, seems to view reflection as being part of critical thinking. Wallace (1996a, b) examined reflective practice and critical thinking, although did not attempt to define the precise relationship between the two, instead suggesting that each contained elements of the other. She concluded, from her study of nurses’ reflections on practice through critical incident analysis, that there is

...no single right way of thinking critically and more research is needed to provide evidence of effective and non-effective outcomes of reflection... (Wallace, 1996a, p.47)

3.8 Is it all a good thing? – critiques of reflection

3.8.1 Reflective practitioners' own meanings

Johnston and Badley (1996) are among a small, but growing, number of writers on reflection who have recognized that reflective practice has been almost uncritically viewed and adopted as a self-evidently good thing for which we must all strive and which must be incorporated into practice by all professionals. They sought to examine the practical difficulties that professionals encountered in adopting reflective approaches to their work, and so form a bridge between the lack of practical guidance identified by Day (1993) and the issues of realistic implementation identified in a growing body of the recent nursing literature.

Based on interviews with reflective practitioners (including a nurse teacher), Johnston and Badley (1996) describe the uncovering of working definitions, objectives and processes of reflective practice, and the competencies needed for, difficulties encountered in, and teaching and learning methods needed for development of reflective practice. Among their main conclusions are that

...it is not the competencies that make the reflective practitioner but, rather, the acquisition of a critical stance or attitude to one's own practice and to that of one's peers. (p.4)

They cite Peters' (1994) assertion that the reflective practice model is valuable for educators in actually showing a marked tendency to avoid conflict, threat, or perceptions of vulnerability. The corollary of this, again, is to question whether reflection truly leads to changes in practice, or whether it merely provides a feel-good factor through prolonged navel-gazing. Johnston and Badley (1996) suggest that, if reflection is to be more than unstructured introspection, it requires a structure or model. They take the view

that, while the aims of reflective practice are not only improved practice but also greater self-knowledge for the individual practitioner, there is nevertheless no commonly agreed definition and no common process. Their interviewees viewed reflective writing as a powerful tool through the use of reflective diaries (a common tool within nursing and nurse education and to be discussed later).

When looking at interviewees' working definitions of reflective practice, Johnston and Badley (1996) suggest the existence of a family resemblance to the views expressed (akin, perhaps, to Wittgenstein's resemblance of forms discussed in Chapter 2). In concluding, they caution that the move towards embedding reflective practice within professions may have political motives or implications, due to it placing the burden of accountability for professional development and changing practice on the individual practitioner. They also believe that reflective practitioners need to move beyond the novice level of reliance on rules-based behaviour to become "expert practitioners, where they act more holistically and intuitively." (p.10) This latter belief has strong echoes for nursing of Benner's (1984) work, one of the most frequently cited works in the literature on the nature of professional nursing practice.

This return to Benner provides a suitable point at which to conclude the general discussion of these issues and move again into considering the specific nursing literature.

3.8.2 Is reflection for all nurses?

Within the UK, nursing's statutory bodies suggest that they see reflective practice as being an issue for all nurses at all levels of practice. While it may seem obvious that for any skill such as reflection, a learning process is needed and novice practitioners may lack the skills, knowledge and practice base to engage in reflection, little of the literature

addresses these questions. Many writers seem to either not consider the questions, or accept the view that it is self-evidently a good thing.

Burrows (1995), in considering the role of the nurse teacher in facilitating the development of reflective skills, suggests that young students (which she defines by age alone) may not have the cognitive readiness and experience needed for critical reflection. This point is supported in the view of Mackintosh (1998). Burrows does, however, suggest the use of simple models of reflection, which may have a greater chance of success than complex ones, due to the time-consuming nature of the latter, in the early stages of younger and less experienced students' practice. Hallett (1997), who voices concerns about community-based students' ability to reflect-in-action, also notes the complexities of reflection.

One of the few research studies to examine the development of reflective practice skills is described by Marrow, Macauley and Crumbie (1997). The study, into implementation of clinical supervision in acute hospital (Accident and Emergency Department) and community settings was funded by the North West Regional Health Authority. Clinical supervision is defined as

...a formal process of professional support and learning which enables practitioners to develop knowledge and competence, assume responsibility for their own practice and enhance consumer [*sic*] protection and safety of care in complex situations. (Department of Health, 1993, p.3)

Clinical supervision was used as the vehicle for developing reflective practice skills and allowed both supervisors and supervisees to become more aware of their practices. One supervisor is quoted as believing that reflective practice

...will assist some nurses in this area [A&E] to become more intuitive practitioners by increasing their self-awareness through the critical inquiry required for reflection in and on practice. (p.79)

The study also noted a shift over time, from earlier sessions centred on critical incidents, to later ones considering a wider range of nursing issues; this was viewed as an evolution from reflection-on-action to reflection-in-action. The results of this study suggest a number of issues for the development and teaching of reflective practice within nursing that merit further study, especially in terms of the development of skills, perhaps based on a progression from simpler to more complex models, as suggested by Burrows (1995).

In addressing the links between theory and practice, it is worth briefly mentioning potential problems in the use of reflective data derived from patient care. Hargreaves (1997) discusses reflection on clinical practice as a way of improving care, but expresses concern that patients are usually not aware of all the purposes for which their information will be used, with some instances of reflection possibly crossing a moral boundary. Jones (1995) also provides an account of the use of reflection to explore an aspect of practice that contains much patient information.

The question of whether reflection is for all nurses remains unanswered at present. It is certainly seen by some as a method of improving practice, and despite valid concerns is seen as a way of tackling the theory-practice gap. Before moving to consider the tools used to demonstrate evidence of developing reflective skills, generally based in some form of written evidence, it is useful to briefly consider Rolfe's (1997) work. He makes a distinction between reflection and reflexion, a distinction of importance in that it provides a partial critique of some of Benner's work.

3.8.3 One step beyond: reflection to reflexion

Rolfe (1997) draws on Benner's (1984) novice to expert levels, but suggests a higher, sixth level of "mindful practice and informal theory building" (p.93) based around what he

terms “reflexive practice.” Although he fails to explicitly define what he means by the term, and admits that it is difficult to define, he provides a partial description, with theory and practice being mutually interdependent, practice and theory influencing each other in a circular manner. From this, he says, emerges reflexive practice. Rolfe sees this new level, reflexive practice, as going beyond many nurses’ views of reflective practice, by taking much more account of the use and development of theory, and its interaction with reflection on, and the development of practice.

He cites, and implicitly criticises, Benner as suggesting that expertise *may* (my emphasis) develop almost incidentally over time (with an implication of no need for reflection), but generally indicates a belief in the need for reflection on experience to process it. Rolfe goes on to discuss reflection-in-practice, and develops the circular process described above as providing a model for theory and practice influencing each other. Rolfe suggests the reflexive practitioner, as opposed to Benner’s expert who does things intuitively and without thought, is engaged in thinking about what they do. Although Rolfe’s work seems much more concerned with the development of nursing theory, it addresses possible routes to reflection-in-practice.

As Rolfe’s work on reflexion is, in essence, related to change, it provides a segue into briefly introducing Kemmis’ (1985) work on reflection.

3.9 Reflection as social action and change

While not from the nursing literature, one important view on reflection, its nature, its value, and the methods of studying and using it, is that of Kemmis (1985). As has already been discussed (section 1.3.1), Kemmis’ approach to reflection, from a critical social

science stance, concurs in many ways with the overall tone and approach of this research and forms the basis of one of the study questions. Kemmis views reflection as a political act; indeed, he goes so far as to suggest, from an analysis of mass culture's influence on humanity's critical capacities, that any book on reflection is "a subversive text." (p.140) Kemmis' points match well to aspects of this study, with those dealing with the social, language and group processes relating well to an examination of CMC, and in particular discussion groups and lists. Kemmis' work has not been adopted, or even explored, widely within the nursing literature, with only a few papers make passing reference (e.g., Glen, Clark and Nicol, 1995; Greenwood, 1998).

Of the few nursing writers who have overtly discussed the implications of reflection leading to changes in practice, Hargreaves (1997) indicates that critical reflection leads to challenging the status quo. In this respect,

...reflection is seen as powerful, but potentially leading the student and educator into conflict with practice which is unused to such sharp scrutiny. (p.224)

I suspect that, despite the widespread rhetoric on critical theory and practice within nursing, Kemmis's approach is too radical for the majority of nurse researchers and theoreticians. On that potentially contentious note, having examined a range of aspects of reflection, including models and frameworks and the potential for and reality of changes in practice resulting from reflection, it is time to move into the closing parts of this chapter. The next section examines issues around reflective writing, before moving into tying together the two strands of reflection and CMC that form the basis for this story.

3.10 Reflective texts and groups

The nursing literature on reflection suggests that a vital part of developing and demonstrating skills is through some form of dialogue, either spoken or written, which is shared with others (either peers or more experienced colleagues), rather than a singular navel-gazing type of activity. Spoken dialogue and discussion have been advocated by many authors (e.g., Glen, Clark and Nicol, 1995; Graham, 1995; Durgahee, 1998), especially in respect of providing evidence within an evaluative or assessment framework for the development of skills or the quality of reflection. However, written evidence seems to be much more commonly used (e.g., Jasper, 1999). This written evidence generally takes the form of some kind of journal, in which the practitioner records their reflection, for sharing with others at a later time. This asynchronous form of communication seems to demonstrate of itself that most nurses practice or advocate reflection-on-action rather than reflection-in-action. More importantly in the context of this research, this leads to the consideration of one of the central themes of the research, which is that of the potential use of asynchronous, textual CMC as a vehicle for reflection.

In their book on reflection as an approach to nurse education, Reed and Procter (1993) demonstrate that the main methods used within nursing and nurse education for reflection-on-practice are all essentially text-based. They usually require a journal to be kept by the student, and usually require the student to, at least in the initial stages, work on their own at reflecting on their practice before bringing their thoughts to be shared with others. It is often the case that the reflective journals form the basis of assessed work. The various forms discussed all require the students to use and apply knowledge (assuming they have already gained it) to their practice. The activities may include critical

incident analysis (which can be group or individual activities); clinical studies assignment (individual); and use of diaries/journals to record clinical placement activities and reflect on them. All of these would seem to develop reflection-on-practice, i.e., retrospective analysis of experience, although there is often the apparent hope or expectation that reflection-in-practice might be developed, although generally with little indication as to how this might be achieved, apart from through some form of osmosis.

In much of the literature discussing the development of reflective skills, and in advocating practices to develop such skills, reflection on critical incidents features strongly as a recommended method. Heath (1998a, b) describes a specific practical approach to recording reflection on practice, so as to facilitate both immediate description/reflection and later, possibly more in-depth reflection. She notes the need for reflection to address positive as well as negative experiences. This might seem self-apparent, but is generally not borne out in practice, with the limited evidence available suggesting that much reflection is of the “what went wrong” type rather than considering the lessons to be drawn from successes. She does, however, question the current vogue for discussion of reflective practice within education, and wonders whether it aims to improve it or merely constrain the methods to a form that is acceptable to teaching staff. Other advocates of reflective writing include Burrows (1995), who promotes discussions and writing, Chambers (1999), Mountford and Rogers (1996), and Riley-Doucet and Wilson (1997). Pierson (1998), in discussing the use of journal-writing notes that “achievement of deeper levels of reflection usually require that journals, in some way, be dialogic.” (p.167) Cameron and Mitchell (1993) also discuss reflective peer journals and their construction in a collaborative manner among groups of students. Mallik (1998), in a comprehensive account that compares the UK and Australian experiences, describes both oral and

written reflective accounts, as well as attempts to express reflective experience through other media, such as painting or drama.

This reliance on reflective journalling is not without its critics. Wellard and Bethune (1996) are particularly forthright, viewing reflective practice as “a totalizing discourse which views reflective journalling as unproblematic.” (p.1077) Such forms of writing might “act as a force for reproduction of existing ways of knowing rather than leading to emancipation.” (p.1078) Siting their critique within critical theory and post-structuralism, they acknowledge the strong influence of Schön on nursing’s adoption of reflective practice. They argue, though, that their students (who are qualified staff engaged on post-registration courses) have a

...strongly embedded practice view coupled with a passive resistance to engaging in process of exploring their nursing practice. (p.1078)

They conclude that seeking to promote reflection may be a self-defeating exercise, as nurse teachers are also maintaining/increasing the students’ powerlessness to effect changes. Clarke, James and Kelly (1996) state that most nurses work in environments where reflection (and questioning of the status quo) is not encouraged. In such cases, any focus on the outcomes of reflection (i.e., raising false hopes that change might be possible), rather than simply on the processes, is inimical to the development of reflection.

Other mechanisms for the development of reflective skills include action learning groups (Graham, 1995), a collaborative process based in group therapy techniques. Such therapy-based processes seem akin to Johns’ recent suggestions for using reflection in an almost therapeutic version of clinical supervision (Johns, 1999). Haddock (1997) has criticised aspects of this method, suggesting that the skill of the facilitator is important for

the success of reflective groups (akin to the importance of the role of the moderator in CMC groups), and that too loose a structure results in anxiety and other problems.

Reflective groups, as opposed to individual or one-to-one reflection, have also been tested by Stoddart et al. (1996), albeit with groups of nursing students. They found that, while the groups provided support, there was little evidence of linkage between theory and practice resulting from the group discussions, or of reflection-on-action. Group reflection has also been examined by Mountford and Rogers (1996), although seems to have been more a group examination, after the event, of nurses' individual written reflections, rather than any attempt to examine issues within a group context.

Platzer, Blake and Ashford (2000) set up small groups of students to provide reflection on their practice, noting the absence of research and literature on the use of discussion groups for the facilitation of reflective processes. These groups were facilitated, and so, although some of the findings from this work do have similarities to some of the processes that will be seen in the online discussions, one important difference is that the online groups were not directed or facilitated in any way. The issues raised were spontaneously generated by the participants' own practice needs.

Wallace (1996b) examined the use of reflective diaries by students, suggesting there was little evidence for their effectiveness as an assessment tool. She questioned whether, due to the *post hoc* subjective interpretation that occurred after practice events, they were an effective tool for formatively assessing learners' progress. Callister (1993) also discusses learning journals in the context of critical thinking, albeit that, without using the term, seems to provide a form of reflection. Callister (1993, p.185) says that

Writing enhances higher-level conceptual skills through the process of developing understanding.

It seems evident from the literature that, while critics of their effectiveness have voiced concerns from several perspectives, reflective journals, generally featuring reflection-on-action, are a common component of the processes of reflection in offline settings. They are used particularly in educational environments, and have an element of compulsion, as an expected component of formal educational courses. Having discussed some of the issues around the use of textual methods for providing vehicles for and evidence of reflection, it is time to bring this chapter to a close by linking together the literature on reflective practice within nursing with that on computer-mediated communications.

3.11 CMC and reflective writing: merging the strands

...groups of adults united by some common concern, some shared status, or some agreed-upon purpose that exchange information, ideas, skills, and knowledge among members and perform a number of functions having to do with problem solving and the creation of new modes of practice or new forms of knowledge. Brookfield (1986)

From the early days of using and studying asynchronous CMC there has been the suggestion that, because it allows the composer of a message time to reflect on the content of that message while writing it and before sending it, CMC was more akin to written texts than oral discourse. There is a considerable literature addressing these issues, some of which has been presented briefly in Chapter 2. There seems to be, however, an emerging consensus that CMC must be considered as different from oral or written discourse. This discussion also suffers to some degree from the conflation of CMC research results discussed in Chapter 2, as some forms of CMC, e.g., rapid-response synchronous forms such as IRC are more oral, while listserv discussions are often more textual. The potential of text-based, asynchronous CMC for providing a mode

for considered rather than rapid responses to communications links the two areas of CMC and reflection and provides one of the underpinning themes of this research.

As has already been noted, there has been some use of discussion lists and other forms of CMC within formal courses as well as in patient-focused online groups, but few have written about the use of informal discussion forums, such as listservs, as a way of examining and influencing practice. One such is McCartney, a Clinical Assistant Professor in the USA, who has shown, albeit not through detailed research, how discussions on another nursing list have resulted in changes in nurses' practice. Although not using the term reflection, there seem to be strong elements of what would be recognized as reflection in the examples she provides. The examples used by McCartney (1998a) will be introduced later to show how her description and interpretation of events match the model and analysis developed in this research. She summarises the examples by stating

If ever I doubted the power of an electronic discussion list, I have no doubts now! Electronic networking on the Perinatal List has been shown to influence nursing practice in several recent instances ... (McCartney, 1998a, p.335)

Andrusyszyn (1996) is one of the few nurses who have explicitly examined reflection within CMC environments. It is worth considering her study due to the similarity with my own work, although she did not specifically address nursing students. In her Doctorate of Education thesis, Andrusyszyn examined the facilitation of reflection within CMC learning environments that were part of formal educational courses. The aim of her qualitative study was to look at reflection by learners where reflective activities were purposely built into a course. She studied the quality of the learning experience online when methods used to facilitate reflection in traditional, face-to-face, environments were integrated into the course designs. In particular, she studied interactive and independent

journal writing, learning partnerships, and reflective assignments, using transcripts of online interactions and online interviews. She concludes that

...the phenomenon of reflection may and should be actively fostered in an online learning environment using design strategies that guide and support critical thinking and meaning making. (p.ii)

She indicates that facilitators (educators) would need to play in active role integrating strategies for reflection into formal education, and saw reflection as

...a personal process which arises from the cognitive and affective synthesis of ideas, and that it may be strengthened through dialogue. The goal of reflection is the construction of meaningful understandings. (p.ii)

Andrusyszyn (1996) identified three interdependent dimensions within her data whereby these meaningful understandings were constructed:

- Reflection as a personal process, wherein the individuality and individual and personal reflective processes of the participants were demonstrated;
- A process of synthesis of ideas and information; and
- The role of dialogue between and among participants in stimulating reflection.

She felt that her study demonstrated that

...reflection in a computer-mediated learning environment is indeed possible, valuable, and effective in helping learners develop meta-cognitive awareness. (pp.143-4)

She went on to say, however, that many of her study participants demonstrated her original premise that “reflection would remain cursory if unguided and unattended.”

(p.144) Many also said that their reflection only occurred in any depth and detail due to being an integral part of the course requirements.

Andrusyszyn’s advocacy of the need for guidance and structure within reflection, and her suggestion that real reflection can only occur within structured environments echoes the

views of a number of writers who have addressed reflection in the offline nursing world. The issue of whether “better” reflection might be evidenced within a structure has not been addressed specifically within this study, although, as will be seen in the analysis and discussion of the list discussion threads, elements of reflection, and of changes to practice as result, can occur within unstructured environments.

3.12 Chapter 3 summary

Within this chapter, many issues around reflection and reflective practice within nursing have been introduced and considered. Due to the imprimatur of influential bodies, and perhaps for other reasons, reflection, or the advocacy of reflection, is a mainstream component of nursing within the UK and elsewhere, although it is not without its critics. Few critics address the concept of reflection, and more of the criticism is oriented towards its practical use within educational and clinical practice, and especially on the outcomes of the processes and evidence for any influence on nursing practice.

It is not the purpose of this study to question the wisdom of this adoption of reflection, although whether it will become just another passing fad, or will form one of the quintessential components of nursing practice, remains to be seen. The reality of some form of reflection is accepted. However, to date, little work has been undertaken examining the possibility of reflection not only in face-to-face contexts, through oral discussion, and through the use of reflective accounts committed to paper, but in online environments, in electronic virtual spaces. The literature on CMC points to the possibility of reflective processes occurring, especially within asynchronous discussion lists. The purpose of this study is to bring these two areas together, and to examine one discussion forum in particular, the NURSENET discussion list, for evidence of reflection, and for

outputs of reflection, such as learning and changes in practice. The next chapter outlines the data collected for this purpose, while the subsequent chapters present, analyse and discuss that data.

Chapter 4

Conceptual, theoretical and methodological challenges

Research methods which fail to take into account these aspects of reflection are, at best, limited and, at worst, mistaken; to improve reflection, the study of reflection must explore the double dialectic of thought and action, the individual and society.

Kemmis (1985)

What we observe is not nature itself, but nature exposed to our method of questioning.

Heisenberg (1958)

4.1 A shamelessly eclectic approach

The purpose of this chapter is to demonstrate that the research design is not an *ad hoc* amalgam of pieces thrown together, but is grounded in, consistent with, and has literature support from emerging trends in research both in CMC and in nursing. Or, as Maggs-Rapport (2000) states:

...methodological triangulation may be the key to telling a credible story whilst at the same time convincing the audience that data collection and analysis are carried out in a thorough and unprejudiced manner. (p.219)

The chapter begins with a consideration of the broad framework issues for the research. This includes the philosophical and theoretical frameworks within which the research was undertaken, showing how the overall approach, and the combination of methods, fit in with emerging directions and views within both the CMC (section 4.2) and nursing literatures (section 4.3). Section 4.4 begins with a summary of the data collected and the methods used, and shows how each of these contribute to answering the research questions that form the basis for this study.

Following these sections, some of the broader ethical issues around the collection and use of data derived from online discussion forums are discussed. Section 4.6 provides a consideration of the issues of validity and generalizability of quantitative research, and of

this and similar studies. It includes discussion of the limitations of the validity of this particular study. Discussion of these areas is necessary to show how the methods and the philosophical and theoretical frameworks integrate and are consistent with one another within the context of emerging methods and approaches to such research.

4.2 Emerging ethnographies in CMC research

Sullivan (1993) said nearly 10 years ago that there were no widely accepted designs for research into electronic communities, and that the methodology was in its infancy. This view was due, in part, to the wide range of disciplinary perspectives from which CMC research was arising. Although such studies are no longer in their infancy, even within nursing, it is still true that there is no widespread acceptance of the best design for any kind of CMC research. Within the philosophical framework to this study, this lack of a best design is seen as appropriate and as a benefit, rather than a problem. This section will show that, however, there do seem to be certain trends, and commonalities to the designs of many studies. I do not seek to propose a best design, nor a recommended approach for other studies, but to simply show where, in the scheme of things, this particular study, undertaken at a particular point in time, and in a particular virtual space, fits.

Sullivan (1993, p.44) also noted that “researcher bias cannot be eliminated; it needs to be acknowledged and contained.” I have attempted, therefore, to show in this and subsequent chapters my own stance on the issues, and what is my interpretation and what that of others who contributed in various ways to the construction of the story through participating in data provision.

In discussing different forms of CMC in Chapter 2, I introduced some of the methods that had been used over more than 20 years in the study of CMC. In the early years, and even in some instances, more recently, much of the research was experimentally-based, while other studies have used a range of methods to undertake field research into the real-life experience of CMC users. In recent years we have seen much more use of qualitative methods of study, especially of ethnographic research into online communities or the use made of CMC by individuals and groups in natural, as opposed to experimental, contexts. However, many of the research studies have adopted or adapted research methods developed for the study of offline, usually face-to-face interactions, with little overt consideration being given to whether these methods are appropriate to apply to CMC. This is not to say that, *per se*, the offline methods are not appropriate to online studies, but to caution on their automatic adoption. Few attempts seem to have been made to develop or explore new or innovative research methods from within the online world, that do not rely on offline antecedents and that might be more appropriate for investigating CMC in a rapidly changing social and technological environment.

Other CMC researchers pose some of these same questions, and in particular Waskul and Douglass (1996, 1997) have raised the prospect of new research methods and paradigms emerging. They used a mixed-methods approach to their research, seeking to identify characteristics of the form of CMC they studied (synchronous chat), and so ground their findings in the experiences of participants. They criticise much of the recent literature on CMC and I would support a wider application of their critique, in that the recent literature

...abounds with ideologically biased accounts of on-line interaction that hinder the emergence of a coherent analytical framework. (Waskul and Douglass, 1997, p.375)

Waskul and Douglass (1997) also make a more general distinction between their study and the earlier work and literatures in which early thought and study methods used in CMC are grounded. They say that

Empirical and theoretical work on computer-mediated communication has overwhelmingly focused on institutional, professional, and work-related contexts. Such studies have utilized predominantly experimental designs, and a majority have sought to document the social, psychological, and organizational effects of computer networking technologies in work-related and task-oriented contexts... However, recreational and leisure contexts of computer-mediated communication play are far less extensively examined. (p.376)

I believe that, while to some degree my research here is professional and work-related, the main emphasis is on the informal modes of learning and reflection undertaken by nursing professionals, and is congruent with the informality of recreational and leisure contexts envisaged. However, I would suggest that they are not doing sufficient justice to the possibility of wider application of their approaches and critique. These may be used to feed back methods derived from research into the informal contexts into new research in formal settings.

Schrum (1995) describes the need for an amalgam of methods, using standard ethnographic methods, including interviews and participant observations, intertwined with electronic communications in studying electronic communities. She uses terms such as “electronic ethnographer,” “electronic participant observer,” and “tele-researcher,” concepts similar to those adopted within this study. The global nature of the particular online community studied makes pertinent another issue raised by Schrum, when she asks how one can find “an ethical way into local context when that local context is scattered around the world?” (Schrum 1995, p.313) This is addressed further in section 4.5.

Paccagnella (1997) also explores ethnographic research on CMC and virtual communities, acknowledging the wide range of research paradigms within which CMC research has occurred. After acknowledging the difficulties in defining virtual communities, Paccagnella (1997) suggests a need for generally constructivist interpretations of online interactions to understand their complexity. He concludes that the very nature of CMC could help to transcend the qualitative/quantitative divide in research methods, suggesting a need for approaches that are “shamelessly eclectic in our use of methods.”

Aycock and Buchignani (1995) use an ethnographic approach, and additionally a postmodern philosophical framework, to examine CMC discourse. They describe the interrelation between the CMC discourse and the surrounding physical reality of events to which they refer, as “nearly instantaneous interpenetration of ethnographic text and referential context.” (p.191) Yoon (1996) similarly uses a post-structuralist perspective to analyse power relationships within CMC, and many of the papers presented in Ess (1996b), Herring (1996c), and Jones (1995a) provide similar approaches to the study of real world uses of CMC, especially the study of online communities. Correll (1995) provides another similar study of an electronic community through ethnography, incorporating participant observation of the list discussions with interviews conducted by email and telephone.

This brief review of some of the studies shows an emerging strand within CMC research with which this study is congruent. It is not intended to deny the many other methods that exist for undertaking CMC research and that may be of value in certain circumstances. This emerging congruence of approaches does go some way towards answering the question posed by Herring (1996c), who says that

...rather than wondering whether CMC scholarship is legitimate, a more appropriate question now is how scholarship can best keep pace with the continuing expansion and diversification of CMC. (p.2)

Having considered research methods within CMC, the next section examines some emerging trends within nursing research.

4.3 Multiple methods in nursing research

The use of mixed or multiple methods is a trend that is strongly developing within nursing research as more and more nurses decide that methods and approaches grounded solely in positivist paradigms are not adequate to explore or explain the nature of nursing practice (Cheek 2000). This builds on earlier work on the amalgamation of qualitative and quantitative approaches (e.g., Dzurec and Abraham, 1993) and the development of multiple paradigms (Cull-Wilby and Pepin, 1987). Cheek (2000) is an advocate of the use of differing approaches to nursing research, as appropriate to the issues under investigation. She suggests that one of the major benefits of exploring new methods and approaches is that they may “open up previously overlooked or under-researched areas impinging on and influencing practice.” (p.1) By extrapolation, new and under-researched practices, such as the subject area of this study, may be appropriately subject to new and different approaches, a theme also introduced by Taylor’s (1998) phenomenological perspective on reflection and practice. I will briefly address two areas to illustrate how the methods and general approach within this study are congruent with these trends.

Maggs-Rapport (2000) argues that a triangulation (Denzin and Lincoln, 1994) not only of methods, a common approach to nursing research, but of methodological approaches may provide nursing with ways to explore and understand the reality of many aspects of

nursing. She advocates in particular the combination of aspects of ethnography and interpretative phenomenology. Through the triangulation of appropriate data, their analysis, and validation of the results, the aim is to show the researcher's

...interpretation of the phenomenon under review, whilst at the same time considering that phenomenon in terms of the participant group, their cultural background and day-to-day experiences. (p.219)

As the data in this study show, the participant group (the NURSENET list) is discussed, their cultural background is discussed, in terms of their existence as a genuine electronic community, and the discussion thread data are shown to be central to their day-to-day experiences.

Maggs-Rapport (2000) warns against the application of data and methodological triangulation of this kind in all contexts, but suggests that combining these approaches,

...the researcher rigorously accumulates and presents data using a variety of methods while emphasizing that their interpretation is transparent enough to permit challenge. (pp.223-4)

I believe that the approaches taken within this study meet these criteria.

I do not claim that, as the researcher, my interpretation of the data and their analysis is the only one possible. However, the findings from the later interviews (described in section 4.4.7) indicate that at least some of the list subscribers seem to share those interpretations. In this respect, the study fits within a postmodern framework, although is not a 'postmodern study' as such. As described by Cheek (2000), this approach takes the view that

...no single representation of health care or nursing practice can hope to capture the "truth" about that care or practice. Rather, any representation of health/nursing offers one of a number of possibilities for analyzing the reality in question. This includes the methods, and even the questions, that researchers choose to employ... (p.20)

The work of the French philosopher Michel Foucault is among the most frequently used within postmodern approaches in nursing. Gastaldo and Holmes (1999) review almost 40 nursing publications addressing or applying Foucault's work, most from the late 1990's. This is perhaps in part due to Foucault being among the more accessible and readable of the postmodern and post-structuralist philosophers. His work is perhaps also frequently used because, as Gastaldo and Holmes (1999) note, it addresses many aspects pertinent to health care, as

...the most frequent concepts treated in the literature reviewed are power/knowledge, surveillance, discourse, discipline, resistance, docile bodies, clinical gaze, and panopticon. (p.231)

Postmodern analyses seek to challenge many aspects of everyday reality (Cheek 2000), for example, aspects of nursing and health care that are "normal," routine or taken for granted. In the ways in which the reflection of the nurses involved in their "normal" practice on the discussion list often implies or unequivocally states a need to challenge and question such practice, this use of online reflection is congruent with a postmodern approach to, or framework for, the analysis. Finally, it should be noted that many nursing and health researchers who adopt postmodern and/or post-structuralist approaches to aspects of their work utilise similar mixed methods or methodologies to those already discussed. Thus, for example, Fox's (1993, 1994) work and that of Wicks (1995) use ethnographic techniques, interviews, and participant observation.

While many of those who have written in this field have done so from a theoretical perspective (e.g., Doering, 1992), Price and Cheek (1996) used a post-structuralist perspective to analyse the discursive construction of the nursing role within pain management. Cheek and Rudge (1994a, b) used postmodern and post-structuralist approaches to examine aspects of health care and nursing. Walker (1995) examined

nursing's oral culture and how nurses explain their work through stories and narrative, while Koerner (1996) investigated administration and social policy making. Lister (1991) examined nursing models from a postmodern perspective, in order to explore underlying assumptions. Brown (1994) has also used discourse analysis, in this instance to examine nurse-patient interaction around clinical issues. The use of textual materials by nurses, and within this study, provides for another relatively new, but growing, aspect of nursing research. As Cheek and Rudge (1994a, p.21) state,

Exploration of nursing as textually mediated reality enables us to raise and explore the key questions of how nursing knowledge is produced and how nursing as the subject of that knowledge is represented in texts.

After the preceding, theoretically based, discussion of some of the contexts within which this study is framed (the conceptual and theoretical challenges), it is now time to turn to a more practically-situated discussion of the stages of data collection.

4.4 Methods of data collection

4.4.1 Fitting the methods to the questions

In this section, I will describe the methods adopted for the collection of the data used within this research. The data and the general forms of analysis are congruent with the approaches of many other recent analyses of CMC. Akin to methods described by Waskul and Douglass (1997), they include a survey conducted by email, participant observation of list discussions, content analysis and open-ended interviews with list subscribers.

In Chapter 1, the questions forming the basis for this study were presented. The main question was stated as:

Do informal electronic discussion forums, such as listserv discussions, provide an environment within which nurses can reflect on their practice?

This broad question leads to the necessity of focusing questions into a number of areas. Some of these questions are core to the study, while others are more contextual, but, given the nature of the study, are important aspects.

The core questions that the data were collected so as to answer are:

1. Is there evidence from the list discussions of reflection occurring?
2. Can the reflection (if it seems to be occurring) be demonstrated to be such by mapping against any recognized models or frameworks of reflection within nursing?
3. Can a specific model/framework be developed and tested (if others seem not be adequate) for the description and analysis of reflection within listervs?

The associated and more contextual questions are:

4. Does an electronic discussion forum (such as NURSENET) form what might be recognized as a community (by any definition of such)?
5. If so, does it provide a “safe environment” within which nurses feel able to discuss practice issues, and within which they might be able to reflect?
6. Do list members feel that there is reflection?
7. Does the reflection within the list discussions meet Kemmis’ seven points?
8. Is there any evidence of changes in practice as a result of any reflection that may be occurring?

Several data collection phases were undertaken over an approximately 6-year period. I will firstly summarise the phases, before considering each in detail and showing how each relates to the study questions. The six major phases were:

1. data collected over a 6 year period, mainly from 2-day “snapshots” within each year (section 4.4.2);
2. the first NURSENET survey (described in section 4.4.3). This comprised a questionnaire sent by personal email to a sample of subscribers to the NURSENET discussion list;

3. Virtual Focus Groups (described in section 4.4.4). Two small, private discussion forums were established to gain the opinions of experts in the nursing use of CMC;
4. the second NURSENET survey (described in section 4.4.5). A similar questionnaire to the first survey was sent to a sample of NURSENET subscribers who responded to an invitation on the list to participate;
5. NURSENET discussion digests (described in section 4.4.6). Digests of the list discussions over a full year were collected and formed the corpus from which a subset of discussion threads was selected for content analysis in respect of evidence of reflection within the discussions;
6. interviews exploring reflective practice (described in section 4.4.7). A small number of email-based interviews were conducted with respondents to the second NURSENET questionnaire.

Table 4.1 provides a brief summary of the data collection detailed in the subsequent sections of this chapter, together with an indication as to which of the research questions given above each helps to address.

Table 4.1 Relation of data collection phases and study questions.

Data collection phase	Study questions addressed by each data collection phase
4.4.2 NURSENET snapshots	4, 5
4.4.3 First NURSENET survey	1, 4, 5, 8
4.4.4 Virtual Focus Groups	1, 5, 6
4.4.5 Second NURSENET survey	1, 4, 5
4.4.6 The main corpus: NURSENET discussion digests	1, 2, 3, 7, 8
4.4.7 Interviews exploring reflective practice	1, 2, 3, 4, 5, 6, 8

4.4.2 NURSENET over the years

The first data presented (section 5.2) were collected over a 6-year period, giving seven points of data capture. For each year, beginning in 1994 when the data set used in the MSc study was collected, a “snapshot” of two consecutive days’ digests was selected.

The decision was taken to use weekdays, during academic terms (or semesters), when list traffic tended to be higher, and equivalent days were selected for each of the years up to and including 2000. These illustrate aspects of the evolution of NURSENET in terms of the numbers of subscribers and their levels of activity.

4.4.3 First NURSENET survey

In order to obtain baseline data from which to ascertain relevant issues to explore (and so using an *ad hoc* form of grounded theory methods; Benton, 1991), a questionnaire, together with accompanying explanation, was sent by personal email to a sample of subscribers to the NURSENET discussion list. This list was chosen as it has been, for many years, one of the largest of the nursing discussion lists, and is probably one of the most well known and most active, although it is not the longest established. NURSENET was launched on September 26, 1993, while the oldest continuously operating nursing discussion list seems to be NRSING-L (nursing informatics list), founded by Gordon Larrivee in May 1991. Being well-known and a list with the specific purpose of being a global forum for discussion of a wide range of issues, NURSENET is likely to attract the novice discussion list user, who may then also subscribe to, or move to, other lists with a more specific focus.

Another reason for choosing to use the NURSENET list is that I have been a member of it since 1994, and have undertaken previous research into the list, the ways in which nurses use it, and the benefits they derive from being a subscriber. I have also provided back to the list and its subscribers the results of many of my previous formal and informal analyses. This has helped to build a degree of trust and rapport, and perhaps has resulted in some subscribers agreeing to participate in my research where they might not have participated in that of a total stranger. While, because of the fluidity of subscribership,

with subscribers continually joining and leaving the list, I could not be expected to be known to all subscribers, I have been sufficiently active in the list (especially in the periods of active research and data collection) to be known to many members. Through myself being a participant, this also turns the research into a form of participant observation.

My earlier research using the same list (Murray 1995b, 1996) had indicated some of the reasons why nurses used discussion lists. Although this questionnaire was, to some degree, covering the same ground as the earlier work, it was felt to be a useful exercise to ascertain whether the results were congruent with the earlier findings, or whether the types of usage had changed. Many discussion lists have a large transient subscription base, a point noted by Rojo (1995, 1996) in her study of “scholarly electronic forums,” although there is often a “core” of longer-term subscribers. My own involvement with the NURSENET list over several years has confirmed that, while some subscribers remain with the list for a considerable period of time, and contribute at varying intervals to the discussions, many remain with the list for a short period, contribute several messages over a short period of time, and then leave again. Many of the subscribers within this latter category are students, who are required as part of their studies to subscribe to lists, post and receive messages, and participate in discussions. However, there appears to be another group of nurses who subscribe for relatively short periods; their reasons for both joining and leaving is an issue that is not explored in this work, but would be a useful area for further research.

When the questionnaire was sent, the NURSENET list had 1798 subscribers, in 26 countries. My own previous experience of posting questionnaires to the list suggested that following this course again would be likely to result in a similar low response rate.

My MSc study produced only 9 respondents willing to participate in a survey (i.e., a 0.7% response rate), and reports from other studies conducted on nursing and other lists indicated that a response rate of no more than 2-3 % was likely. This is not only confined to nursing; Anderson (1995) in discussing a virtual conference of distance educators cites a return rate of 9 out of 554 (1.6 %) for his evaluation survey when it was sent as email. Additionally, discussion on NURSENET and other nursing lists around the time of this questionnaire had indicated a growing resistance among many members to the list being used for unsolicited research purposes. Sheehan (2001), after studying response rates to email surveys undertaken since 1986, found that response rates had declined significantly since. In concluding that using techniques derived from mail surveys did not appear to significantly influence the response rates to e-mail surveys, Sheehan (2001) identified a range of possible reasons, but no single primary influence.

With the permission of the listowner, I sent the questionnaire to a stratified sample of about 5 % of subscribers. Given the concentration of list members in one part of the globe (i.e., 73 % from the USA and 16 % from Canada), a random sample would have produced most potential respondents from these areas. As the list is meant to be a global forum, I was interested in representation from more areas than might occur with a random sample. In total, 111 subscribers were sampled (6 % of the list). 26 responses were received (23.4 %), of which 18 (16.2 %) provided usable data sets. While this represents only 1 % of total list members, it is an improvement on the response rate from the MSc study. However, the aim was not so much to provide a truly representative sample as a baseline of opinion to inform the direction of the study, and provide a basis for further questions.

The questions asked within this questionnaire can be summarised into the following areas:

- a] collection of basic age, gender, academic qualification and geographical demographics;
- b] whether the respondent was a nurse, and if so, their main area of practice;
- c] how long they had been subscribed to NURSENET, and whether they also subscribed to other nursing or health-related lists;
- d] their patterns of interaction with the list, including proportion of messages read and methods for deciding which to read, and their degree of contribution of messages;
- e] their reasons for subscribing to NURSENET and the benefits they obtained from list membership;
- f] whether they could provide specific examples where they had used any information gained from the list in relation to their nursing practice; and
- g] their experience of, and potential interest in, online courses.

The results of the questionnaire are presented in Chapter 5.

4.4.4 Virtual Focus Groups

The questionnaire to NURSENET helped to provide a baseline of information in respect of the benefits that nurses using the list derive from it. However, a portion of the subscribers would be expected to be novice and relatively unsophisticated users of CMC. I felt that it would be useful, before exploring the issues around the potential for online education with list members, to first gain the opinions of experts in the field as to the current use, best practice and future potential of using CMC for nurses' continuing professional education. To this end, I established two forums that I termed "Virtual Focus Groups" (VFGs) to gather such opinion. I decided on this term before finding its use in the literature. The VFGs were focus groups in which all discussions are undertaken using CMC, with no face-to-face meeting between participants (Murray, 1997a). My use of such a method at this point of the research is consistent with Patton's (1990) conclusion that focus groups are appropriate at any point within the research process, from initial

exploration and framing of research questions to final validation of the researcher's findings.

Focus groups are a well-tested and established method within nursing and health research (e.g., MacIntosh, 1993; Macleod Clark, Maben and Jones, 1996). Schutt (1996, p.329) states that

...they share with other field research techniques an emphasis on discovering unanticipated findings and exploring hidden meanings.

Focus groups are small group interviews, concentrating on specific topics, comprising typically 6-8 people and lasting for one-half to two hours (Patton 1990). Participants usually discuss issues and questions posed by the interviewer, and, after hearing each others' responses, may make additional comments. They do not necessarily seek to reach the kind of consensus sought using Delphi techniques. They generate mainly qualitative, text-based data (and thus email-based forms can be seen to have many advantages with respect to the accuracy of data capture). They allow for more exploration of issues and potentially counteract the researcher bias through direction of thought that some sociologists and psychologists consider occurs with many surveys (Schutt 1996)

My purpose in establishing VFGs was two-fold; to act as a data source and to test the methodology. Searches of the Web and of the paper-based literature using multiple search techniques indicated that little had been published on the use of VFGs. In the health area their use had not been described, and less than six references to their use were found on the Web, in the areas of marketing and manufacturing (hardly surprising given the offline provenance of the method) and in library market analysis (Yoshimura et al., 1995). One set of "Rules of procedure" for VFGs (CEC, n.d.), however, appears to equate the method with Delphi technique.

There are many ways of conducting offline focus groups and reasons for using them. My own use of VFGs is more consistent with Johnson's (1996) concept of "radical focus groups" than with Merton's original ideas on focus groups (Merton, 1946; Merton, Fiske and Kendall, 1956). As such, it is consistent with other aspects of the general theoretical and philosophical context within which this work is undertaken. Johnson (1996, p.519) argues that the traditional use of focus groups (e.g., in marketing, political consultancy etc.) is

...embedded in the epistemological and methodological assumptions of positivism, behaviourism and empiricism, and in research relations which cast the participants as the passive objects of the researcher.

He discusses five qualities of focus groups, which he says provide opportunities for the critical social researcher to use the technique for different, radical purposes. These are that:

- [i] they can provide access to tacit, uncoded and experiential knowledge. The researcher is able to learn from the participants' greater experience, possibly resulting in better questions and new lines of research;
- [ii] the researcher seeks not to impose their own prior assumptions and opinions, but with minimal intervention attempts to access the opinions of the participants;
- [iii] they can assist the researcher in uncovering why participants think as they do;
- [iv] the researcher has the opportunity to study individuals as part of a collective, rather than as individuals, through aiming for group discussion rather than a series of bilateral exchanges; and
- [v] the method can be successfully combined with others.

I chose to use 6-8 members in each group, mirroring the group size for offline groups. I informed the groups that, initially, the discussions would run for four weeks, as way of approximating the offline timescale, and to allow for participants fitting the group work in with their other commitments. The VFG discussions were focused around exploring the current practice and future potential for the use of text-based CMC as a mechanism for

qualified nurses to meet their formal and informal needs for continuing professional education. VFG1 was mainly comprised of people who were educators using CMC, either extensively themselves or within their teaching (as evidenced from my own interactions with them or through their writing about it on lists or presenting at conferences). VFG2 was mainly comprised of listserv experts, i.e., people who had moderated discussion forums for nurses or electronic journals, and had shown themselves to be active within electronic discussion forums (which is not to suggest that some members of VFG1 did not also meet this latter criterion).

The groups were administered as private, closed email-based discussions, using Majordomo (an automated mailing list management programme). This meant that participants received, as an email message, each contribution to the discussion; thus, each participant could, if they wished, keep a complete record of the discussions. This also meant that the record of discussion was available only to the participants, a factor which I expected would facilitate more open disclosure of opinions than in a group whose discussions are potentially available to a wider audience. I undertook all the necessary housekeeping tasks of managing the list, including initially subscribing all the participants, so as to minimise demands on group participants.

4.4.5 Second NURSENET survey

As some time had elapsed since the first survey was sent to NURSENET subscribers, I felt that an additional data set, exploring similar issues and as a comparison to seek any significant changes, would be of value. This second survey was also conducted at the start of the 12-month period during which the main corpus of discussion threads was collected, and so I felt that it could provide a useful collection of opinion at that time.

The data collected in this second questionnaire additionally served a second purpose, which was clearly indicated in the invitation to participate, of providing data for a comparison with nurses' previous experiences of using list discussions. This comparison was a joint undertaking with a colleague in New Zealand who had also previously undertaken similar work, on other lists, to my own on NURSENET. The initial analysis of the data from the questionnaires to NURSENET subscribers was undertaken without any input from my colleague, and the results of our two analyses were then compared. A paper was accepted and presented as Lakeman and Murray (2000) at a major international nursing informatics conference.

A descriptive survey design was used with email the sole method of data collection. A request for participation was sent as email to the NURSENET discussion list, outlining the background and reasons for the request, and containing the questions. In light of experience from previous attempts to gather data and recruit respondents from the list, and from the low response rates reported in other similar studies. I believed this to be a better approach, more likely to elicit responses than the two-stage approach of first asking for participants and then sending them a questionnaire. This might seem to be a contradiction of the reasons given for the data collection method discussed previously in section 4.3. However, this method was selected, at this time, for two practical reasons, the first being the difficulty in obtaining a list of subscribers (now less available than previously). The second reason was that discussions with several list members who had, in the intervening period, undertaken surveys and questionnaires, indicated that the precise method did not seem to greatly influence the response rate; using Occam's razor, the less complicated method was chosen.

The questions asked were fairly simple, and included:

- What do you primarily use the Internet and NURSENET for?
- Has your use of the Internet and discussion lists such as NURSENET changed since you began using them?
- How have using the Internet and discussion lists such as NURSENET helped you in your work? Can you describe any specific examples?
- How do you see the Internet affecting how you work as a nurse in the future?

The questionnaire also asked if respondents would be willing to participate in further discussions around issues raised, and as a result this cohort of respondents formed the basis for the subscribers interviewed later in the year on issues around reflection and reflective practice (section 4.4.5).

A total of 28 subscribers to NURSENET responded and sent answers to the questions. More responses were obtained within a shorter period of time in comparison with similar studies undertaken in the mid-1990's (Lakeman, 1998; Lakeman and Murray, 2000; Murray, 1996).

4.4.6 The main corpus: NURSENET discussion digests

A list digest is one option by which a subscriber may receive the messages from that list. It comprises all the messages sent to the listserv within a particular time period (in the case of NURSENET, a daily digest) compiled into one email message. The NURSENET digests collected were used as the basis for looking at evidence of reflection on/in practice, and were examined in relation to the first model developed, as a pilot analysis, and then the main corpus was examined in relation to the model developed from there. Almost all the digests for the year 1999 were saved as received. "Missing" digests not received for any reason were not retrieved (some were lost due to computer problems

and the loss of a portion of email); there was no particular need for a complete set, as any time period could have been used.

These digests provided an initial corpus of:

- 21.42MB of text
- 13,499 messages
- 563,357 lines of text

The average length of messages was 42.1 lines over the digests sampled; this remained remarkably stable from month to month – the range was 35.9 (January) to 47.1 (August), SD=2.6.

I read through the complete corpus to identify, from the subject lines, message threads that might provide materials of relevance to the research. The criteria for deciding whether a message thread should be selected at this stage were that:

- the message beginning the thread was not obviously an announcement (e.g., of a conference), deliberate humour, an unsubscribe message, or a message from the list owner (e.g., the monthly “the way we were” message detailing subscriber demographics);
- the message beginning the thread had at least four messages responding to it; and
- the subject line indicated that the message content might contain material relating to the sender’s nursing practice.

When suitable subject lines were identified, all the messages in the thread were read and, where I decided they might be suitable, a record was made of the subject line, linked subject line changes, and the start date of the message thread. After the whole corpus had been scrutinised in this way, it resulted in 47 threads (of varying size) being identified as of possible use. At the same time as the messages were being scanned, messages that

seemed to provide some evidence of benefit to the subscribers of being a member of the list, especially in terms of learning, information, community etc. were noted and saved to separate files.

All 47 threads were then searched through again, and all the messages read in detail, as a second tier of screening. Where a thread was identified as being of clear relevance, and meeting the criteria at this stage, all the messages in the thread were cut-and-pasted into individual text files, one for each thread. The prime criterion for selection at this stage was that the message thread, and in particular the first message, should contain material exploring, in some manner, an issue or event relating to the sender's nursing practice. This resulted in the eventual reduction of the number of useable threads to 21, and to a corpus of 435Kb and 395 messages. Of these, 5 threads (94Kb of text and 82 messages) were randomly selected to form the corpus for the pilot analysis, and the remaining 16 threads (341Kb of text and 313 messages) used in the main analysis. The amount of text here was reduced from that in the original messages, as only sufficient intertextual content (i.e., where the message poster had included substantial portion or the entire original message in their post) was retained as needed to establish the context of the messages.

4.4.7 Interviews exploring reflective practice

All of the respondents to the second questionnaire had indicated a willingness to participate in further discussion. On being given a preference of email or telephone follow-up, most had specified a preference for email, with none specifically indicating a preference for telephone follow-up. All respondents were sent an email to the address they had used earlier. This was firstly to test that the address was still valid, and secondly to ascertain that they were still willing to participate in discussions at that time of year (as

a number had indicated that factors such as clinical work might curtail their ability to participate in discussions).

Three email addresses were no longer valid, and following a low response rate, a second request was sent a week later to those who had not responded. A total of 17 of the original 28 indicated a willingness to participate in individual email based interviews, and these were scheduled into two tranches. As a result of further attrition (interviewees were given the option of withdrawing from the process at any point without need to provide reasons), usable data were obtained from 9 interviewees.

The interviews were semi-structured, in that they started from a standard series of questions, put to all interviewees, but the direction and precise nature and focus of each interview was determined by the responses given. The interviews sought to explore a number of issues, including:

1. what the interviewees understood by the term reflective practice, or the phrase “reflecting on practice,” and the term critical thinking;
2. whether they were familiar with the concepts and terms, and what they understood by reflection-in-action and reflection-on-action;
3. whether they had been involved in any formal educational exposure to the ideas around reflection, either through learning about it as a student or teaching it as an educator;
4. what similarities and differences they saw (if any) between reflective practice and critical thinking; and
5. from their understanding, whether they could they give examples they themselves have been engaged in, or could recall any from the list discussions.

Where interviewees had a good knowledge of reflective practice, and where they saw some, or possible, evidence of it from the discussion lists, other issues were also

explored, including possible issues raised from the discussions if poor practice was being exhibited.

This completes the description of the various phases of data collection. In the concluding part of this chapter, two issues of importance to the conduct of this and similar research are discussed. In the next section, a discussion based within the literature of the ethical and intellectual property issues of using data derived from various CMC forums is provided so as to explain the position I have adopted within this study. Following this, and concluding the chapter, the issues of validity, reliability and generalizability of results are briefly addressed.

4.5 Ethical and intellectual property issues in CMC research

Quoting from a conference raises the vexed question of privacy and ownership of messages...issues that have yet to be settled formally by the conferencing community.
Mason (1988)

4.5.1 Whose property, whose permission?

In an area as relatively new (relative, at least, to methods for face-to-face research techniques) as CMC research, one would expect methods and conventions around ethical issues, especially those of accessing sources of data, quoting communications, etc. to be in an early stage of development. Little seems to have changed or been resolved in the 12 or more years since Mason's words quoted above were written. There has been discussion of the issues, but apparently little consensus has emerged, with individual researchers adopting differing positions depending, often, on their own research traditions and methods, and the particular studies they have undertaken. Many of the general issues and principles of doing no harm to participants that have applied to much nursing and other research seem to be generally applicable. The thorny issues of precisely whose

permission might be needed to use a particular contribution to a list discussion, or other form of CMC, still lies generally unresolved.

This is, however, no bad thing. Given the postmodern philosophical approach within which this research is situated, it would be surprising if I did argue for the development or adoption of one overarching, or totalizing, approach to the issue. A plurality of approaches is needed, depending on the nature and context of any particular study. This plurality is, however, situated within the context of general ethical principles of research and the time and virtual space within which the research is conducted. This view is congruent with that expressed by Herring (1996a), in her exploration of ethical and research issues relating to discourse and critical analysis of the content and nature of various forms of CMC.

The general opinion that seemed to be prevalent in nursing circles in the mid-1990's, when there were far fewer nursing-related electronic discussion forums, and far fewer nurses involved in using or researching CMC, was expressed by Judy Norris, listowner of NURSENET. She said then

...it is common practice to consider anything posted to any list or newsgroup as public information, although one should be cautious that no-one is harmed.
(personal communication, cited in Murray, 1995b)

This seems akin to the ethical principle of beneficence (i.e., maximising possible benefit and minimising possible harms from ones actions; Engelhardt and Wildes, 1994), a principle that seems to underpin implicitly, if not explicitly, the views of many CMC researchers from the mid-1990's onwards. Interviewees, whom I contacted to seek their opinions on, and permission for citing of, materials expressed similar views.

In my earlier study of the same list (Murray, 1995b), I adopted what might be termed a cautious approach, based in Howard's (1993) guidelines for quoting "public" email messages in research. Howard's view was that to complete the study and then going back to seek permission to quote was both labour-intensive and inefficient. To overcome the problems, he decided not to seek authors' specific permission, but to:

- a] never use real names or email addresses;
- b] either quote a series of messages to allow the reader to establish the context, or to provide a narrative context for messages;
- c] not quote messages exploring work in progress; and
- d] delete references to any events whereby the author's identity could be established.

However, ownership of communicative output is one of several issues that are continually evolving as the use and nature of CMC change, and are starting to be addressed from a number of perspectives. These issues are compounded by the fact that much of the communication is across national boundaries, each of which may have their own peculiarities of copyright (Krol, 1993), and more recently of data protection legislation. Whose permission is needed, for example, for a nurse researcher based in the UK to use a message posted by a nurse in Australia to a list that is distributed via a computer in Canada? And what if the researcher happens to be in the USA or France when they access the message? This is reflected in the fact that, at the beginning of the twenty-first century we are seeing attempts by national and international legislation to catch up with developments as the reality of e-commerce, technological change and CMC continue to evolve faster than laws (Cavazos and Morin, 1994).

However, not all CMC researchers would advocate such a cautious approach. Some of the differing views are presented in one of the pivotal publications addressing the issues, a

special issue of the journal *The Information Society*, published in 1996. Thomas (1996)

summarised some of the issues into a set of key points, including:

- “research in cyberspace provides no special dispensation to ignore ethical precepts” (p.108);
- there may not be exact analogues in the offline world to ethical issues in cyberspace;
- while certain research activities may be possible, or not precluded, this doesn’t mean they are necessarily allowable or ethical; and
- the ultimate responsibility lies with the individual researcher for honesty and ethical integrity.

Thomas (1996) concluded by suggesting, in a position similar to Herring’s (1996), that basic guidelines might be to

Never put our subjects at risk, never lie to them, and minimize social harm while enhancing social good. (p.116)

Despite the differences of approach to and opinion on issues of the public or private nature of CMC, many of the others who have considered these issues (e.g., Boehlefeld, 1996; Jones, 1994; King, 1996; Reid, 1996) reach a broadly similar conclusion

Herring (1996e) examined two sets of suggested guidelines, those of Cavazos and Morin (1994) and King (1996), for CMC research ethics, concluding that, while they adopted some common assumptions about CMC, they were in many respects mutually contradictory. She says that

...each of these views appears to assume one particular type of CMC...and to generalize recommendations based on that type to all of cyberspace. (p.154)

Cavazos and Morin (1994), from a legal perspective, sees all CMC as published work, protected by copyright law, and thus necessitating full referencing if used, including authors’ names and other identifying details. Few CMC researchers would adopt this type

of viewpoint, which is in direct contradiction of the usual anonymization of sources in much research, especially where sensitive data are being explored. King's (1996) standpoint is that all messages in online discussion groups are potentially private, and so if used in research should be totally anonymized, even to the extent of not identifying the discussion group itself and paraphrasing, in preference to directly quoting, the contributions. Obviously, such paraphrasing would make many of the forms of textual, linguistic and discourse analysis that have been employed impossible to use on CMC interactions.

Herring criticises both extremes of absolutist position as untenable in the reality of CMC research, as they assume one form of CMC only exists, or one approach to CMC research. They also imply that generalizations from one form can be applied to all other variants and forms. She also criticises both sets as not allowing for critical research, excluding the complex reality of both cyberspace and research, and excluding legitimate forms of research on CMC. She concludes that

...just as no single set of disciplinary guidelines is appropriate for all research paradigms, it is difficult to imagine any single set of guidelines that could appropriately reflect the nature of the interaction in all of these different genres. (p.165)

In relation to the "ownership" of messages in discussion lists and other forms of CMC, Waskul and Douglass (1996) examined what they termed the "publicly private" nature of online interactions. They suggested a distinction between "publicly accessible" and "publicly distributed" messages, suggesting that CMC is neither public nor private, but both, and is situated in a context that may be "publicly private" or "privately public." (p.131) However, they also qualify this distinction by saying that such terms only apply if we accept the metaphor of cyberspace as a place with such domains.

Waskul and Douglass (1996) go on to say that the newness of CMC research should prompt greater awareness of the ethical issues involved. They also question the nature and possibility of informed consent in a CMC group that is in a constant state of flux in terms of its membership. They suggest that

...ethical on-line research most often necessitates some degree of informed consent...However, the multiple and simultaneous form of on-line interaction raise serious logistical problems in the effort to obtain informed consent. (p.137)

They acknowledge that, in reality, on-line interactions often render attempting to obtain informed consent a practical impossibility.

Schrum (1995) proposes a set of guidelines (Figure 4.1) for the conduct of ethical electronic research. She discusses whether CMC (especially listserv discussion) is in the public domain and so available to all, or whether the researcher should seek specific permissions to quote. She suggests a need to adapt traditional research techniques and discusses problems of entering, or even identifying, the local context when that context is globally spread. She concludes by suggesting an amalgam of techniques “taking an ethnographic perspective, using interviews and participant observation,” (p.313) referring to the “delicate dialogic balance” (p.314) between protecting the subjects and the freedoms of the researcher.

In the present research, I have adhered to most of Schrum’s guidelines, although some, I would argue, are not applicable to all forms of CMC research. Through my involvement as a nurse researcher I comply with guideline 1. I have explained at all times to participants in questionnaires and interviews the purposes of the research (guideline 3). I was already a member of the electronic forum being researched (guideline 5) and have throughout all my research on the list had many discussions with the list owner.

Figure 4.1 Schrum's Ethical Electronic Research Guidelines (from Schrum, 1995, pp. 323-4).

Researchers:

1. Must begin with an understanding of the basic tenets of conducting ethical qualitative research;
2. Should consider the respondents and participants as owners of the materials; the respondents should have the ability to modify or correct statements for spelling, substance, or language;
3. Need to describe in detail the goals of the research, the purposes to which the results will be put, plans of the researcher to protect participants, and recourse open to those who feel mistreated;
4. Should strive to create a climate of trust, collaboration, and equality with electronic community members, within an environment that is non-evaluative and safe;
5. Should negotiate their entry into an electronic community, beginning with the owner of the discussion, if one exists. After gaining entry, they should make their presence known in any electronic community (e.g., a listserv, specialized discussion group, or electronic class format) as frequently as necessary to inform all participants of their presence and engagement in electronic research;
6. Should treat electronic mail as private correspondence that is not to be forwarded, shared, or used as research data unless express permission is given;
7. Have an obligation to begin by informing participants as much as possible about the purposes, activities, benefits, and burdens that may result from their being studied;
8. Must inform participants as to any risks that might result from their agreeing to be part of the study – especially psychological or social risks
9. Researchers must respect the identity of the members of the community, with special efforts to mask the origins of the communication, unless express permission to use identifying information is given;
10. Must be aware of the steep learning curve for electronic communications. Information about the research should be placed in a variety of accessible formats; and
11. Have an obligation to the electronic community in which they work and participate to communicate back the results of their work.

However, through frequent interactions with the list, including my own ongoing participation, and posting requests for participants, and asking questions to the list about some of the issues, and through discussion with the list owner, I believe that an appropriate practical position has been adopted.

4.5.2 Ethics and intellectual property in context

The ease with which online discussion materials can be accessed raises to a higher profile than in other forms of research the issue of consent from the participants in discussions to use their words. It also raises the issue, already been alluded to, of whose consent is needed. Is it that of the original author, the contributor who has included part of that message in their own response, the list owner, or the general consent of all who have been party to the discussions through their reading, or by virtue of being a member of the list, whether they have been active participant or lurker?

Some of the views expressed by different researchers to some of the issues involved have been presented, as a way of illustrating the range of issues that had to be considered within the development of data collection and analysis methods for this research. From this, I have reached a view that I believe, at this moment in time, is an acceptable approach for the type of research undertaken here with the particular data sources. While I, as the researcher, may have seemed to agonise over the issues, these were, in the main, non-issues to the nurses and others subscribing to the list, as indicated, in part, by the lack of response to raising the issue on the list.

I have taken an approach consistent with Schrum's and Howard's guidelines, anonymizing contributions by omitting names and dates. While I have used a particular approach, undertaken with the particular participants over a particular period of time, I do not suggest that I would adopt this same approach to other research I might conduct, nor would I necessarily suggest that others adopt the same approach. The approach was contextual, and what appeared appropriate; other approaches would be more appropriate within other discussion forums, especially where patients and or greater amounts of potentially confidential or identifying patient information might be exchanged or available.

4.6 Validity and generalizability

It is not cook-book research, but, rather, highly individualistic and dependent on the particular investigatory style of the researcher. Abdellah and Levine (1994)

4.6.1 Validity and generalizability in qualitative research: whose rules must we play by?

Notions of validity and reliability must be addressed from the perspective of the paradigm out of which the study has been conducted (Merriam, 1993). Nevertheless, qualitative research, despite its long history and the frequency with which the issues have been rehearsed in individual studies and within the research texts, seems still to be condemned by researchers based in other, generally positivist, traditions to a need to justify the methods and approaches used. It still seems to be necessary for researchers presenting qualitative or naturalistic work of this kind to “jump through the hoops” set by the potential for criticism from other research traditions. In this regard, there is compunction to explain how the work fits criteria of generalizability, rigour and validity to a degree that is rarely required, and even less frequently provided, but simply assumed to exist, in accounts of research using quantitative or positivist approaches and methods. This, despite the fact that many, or most, researchers from the qualitative and naturalistic traditions would argue that the criteria set are biased, not applicable to their research traditions and even not followed by their proponents within the positivist traditions.

One can question whether the term “analysis” is appropriate for qualitative research generally, and discourse analysis in particular, given its association with a distinct set of procedures deriving from the discourse on quantitative methods (Bryman and Burgess, 1994). Many schooled within the positivist research tradition are unable or unwilling to acknowledge the variety of research paradigms, each with their unique contributions to

the development of knowledge, and see issues of rigour, validity and generalizability as problematic within qualitative, interpretivist approaches to research (Denzin and Lincoln, 1994; Merriam, 1993). They see the positivist paradigm as having primacy, and assert that all other approaches must be measured by the same criteria. Janesick (1994) suggests that the transference of these concepts from quantitative research is theoretically and methodologically flawed, and that it is incongruent to suggest that, within an approach to research that questions the notion of any single, “correct” interpretation, validity can have the same meaning as in positivistic research. It is also important to note that recent developments in the philosophy of science, for example the contributions of Kuhn (1970), Laudan (1977) and Feyerabend (1978), question the true objectivity of positivist approaches to the development of scientific knowledge.

Despite this, it has been deemed necessary to provide an overview and overt discussion of the meaning of validity within qualitative research, and in particular in relation to this study. From this discussion, in the next sections, will derive a short discussion of the limitations of the validity of the study.

4.6.2 What does validity mean in qualitative research?

In general, qualitative researchers argue for a different approach to issues of validity and rigour from that understood within quantitative research (Janesick, 1994). The concepts are concerned with “fidelity to the spirit of qualitative work,” (Sandelowski, 1993, p.2) rather than mechanistic adherence to a set of rules or criteria. Determination of a researcher’s accuracy of interpretation becomes more of a moral and theoretical consideration. As Trochim (2000) states,

No one has adequately explained how the operational procedures used to assess validity and reliability in quantitative research can be translated into legitimate corresponding operations for qualitative research.

Nevertheless, Trochim (2000) does attempt such a translation, and the approach adopted here is that which he outlines, based in the work of Lincoln and Guba (1985), who assert that the concepts of internal validity, external validity, reliability and objectivity can be replaced respectively by credibility, transferability, dependability and confirmability. In the next section, each of these four areas will be described, and discussed in relation to this study, although with the focus being on aspects of validity.

Trochim's (2000) four criteria are also supported by other qualitative researchers, for example, Janesick (1994) and Merriam (1993), who state that validity in qualitative research is concerned with whether the work presents a recognizable description or credible explanation of phenomena. It falls on the researcher to give sufficient explanation of how issues have been addressed (Altheide and Johnson, 1994), and the reader of the work must then assess the transferability of the findings.

Generalizability, as viewed within the positivist paradigm, is an inadequate concept within a research approach that values the particular, unique aspects of individuals' life experiences examined in case studies, thus "reliability in the traditional sense of replicability is pointless." (Janesick, 1994, p.217) Cresswell (1994) asserts that, by providing clear statements about the researcher's central assumptions, biases and values, as I have within this study, and information on the selection of the data interpreted, the possibilities for replication in similar contexts are enhanced.

4.6.3 Validity and this study

Credibility, according to Trochim (2000), and which he compares with the internal validity of quantitative research, relates to the degree to which the results of the study are believable, or credible, from the research participant's perspective. The participants, Trochim (2000) asserts, are the only people who can assess the credibility of a study's results, especially if the purpose of the study is to describe or understand a phenomenon from the perspective of the participants. Within this study, a number of participants in the NURSENET discussion forum were involved in email interviews. These interviews explored some of the issues arising from the early findings of the study, and while the participants were not explicitly asked whether the findings were credible, the answers and further data that they provided were congruent with a view of the credibility of the results. In addition, a summary of the results of the study was offered to the NURSENET list, and comments invited. Very few comments were received, and while this lack of response could be interpreted as meaning that few list subscribers read the comments, the lack of disagreement with the findings is encouraging in terms of believing that list participants found them credible. The list owner was also invited to comment on the full text of the study and its findings, and the comments provided in response were generally supportive of the findings made.

Transferability is compared by Trochim (2000) and others to the external validity of quantitative research, and so relates to the degree of generalizability of the study's results. The onus is generally placed on the person attempting to generalize the results to decide whether this criterion has been met to their satisfaction. The determination of the degree of transferability can be assisted by the researcher providing a sufficient description of the research and its context, while the reader, the one who may wish to transfer the results, is

then responsible for determining the degree to which this can be done. This transferability has, of course, to be taken in the context of the particular study, which may be framed with specificity to a single context or unique body of data, which has no equivalents to which one can attempt to transfer the results.

This study was undertaken using only one of the many nursing online discussion forums that currently exist, although in the responses received, participants also made some reference to other discussion forums. Transferability of the findings to other online discussion forums is one of several possible forms of transferability, and it will fall to myself as the researcher, and to others, to determine in future work, the degree of such transferability of the findings and of the research methods. I believe that the methods used in this study can be applied, without modification, to other online discussion forums, particularly other nursing listservs. There are also many ways in which the method might be varied, including the use of greater numbers of interviews with list participants.

Dependability is the approach used within qualitative research to address the quantitative concept of reliability, which itself is derived from an assumption of replicability or repeatability of a study, its methods, and its results. In addressing dependability, the researcher explores, and tries to account for, the changing context within which the research is conducted, and how this may have influenced the results found and their interpretation.

I have tried, in this report of the research, to provide a full account of the methods used, from initial concept of the study, through the ways in which data were collected and the decisions surrounding that collection, and including description of the contexts of the data sources, including the NURSENET list itself, during the period of data collection. As a

method for auditing the decisions made, a full account is provided of the development of the model of online reflective interaction. Through repeating the methods used here, with the same data sets, I believe that other researchers would be able to repeat the study. The detail provided on the methods also allows others to use the same methods on other data sets to assess the transferability of the methods to these other data, possibly derived from different contexts, e.g., from discussion lists that have closed membership within specific clinical contexts.

Confirmability, according to Trochim (2000) and Lincoln and Guba (1985) is the criterion within qualitative research whereby the quantitative criterion of objectivity is addressed.

This, it has to be recalled, is from within a research philosophy that eschews the whole concept and possibility of objectivity, as unique perspectives are brought to their study by each and every qualitative researcher, and by their research participants and the readers of the research who are, in turn, seeking to explore its validity.

Through strategies including a thorough documentation of the processes of data collection and analysis, and through the presentation of results and interpretations back to participants, the researcher can provide opportunities for the results to be confirmed or corroborated, or even rejected, by others.

In similar vein, Mays and Pope (1995), writing to explain qualitative research methods to medical practitioners, usually grounded in a strong tradition of experimental and quantitative research methods, also suggest that confirmability is one of several ways in which validity can be addressed. These include the feeding back of findings to the participants for their views. They see the key test of validity in qualitative research as whether the account provides sufficient detail to allow someone other than the original

researcher to 'have the same experience as the original observer and appreciate the truth of the account.' (p.111) As I have already outlined, in the above consideration of credibility and transferability in particular, the degree of detail that I have provided in this account of the study, its methods, its results, and the derivation thereof, should allow for a similar experience by someone else immersing themselves in the data, the discussions, and the context, and from this they should emerge with a view supportive of the truth of the account I have provided.

4.6.4 Limitations on the validity of the study

Lincoln and Guba (1985) state that the chances of producing credible findings are increased through prolonged engagement with the data or the participants (I have been engaged with the list for 6 years), through persistent observation (*ditto*), and through a triangulation of methods of data collection and analysis. In respect of the validity of the study and its results, the engagement with participants, to be demonstrated in detail in later chapters, illustrates the degree to which validity has been demonstrated.

However, in each of the areas, one can argue that certain limitations have existed which may influence the final decision of any reader in respect of accepting the findings of the study. Turning again to the issues of credibility (equating with internal validity) and transferability (equating to external validity) in particular, I as the researcher can identify some of these limitations. However, as for all reports of such qualitative studies, the final decision of whether these limitations, or others they can themselves identify, have any impact on their acceptance and use of the findings or the methods, rests with the reader of the report.

I have stated above, in respect of credibility, that the results of interviews with research participants, and offering summaries and further information on the study and its findings to list members and the list owner, all support a view of the study and its results being credible. However, it must be accepted that these are only a small number of people out of the many who daily read the NURSENET list, and who contribute to the discussions. This may be a limitation, as their views may be a minority opinion within the list subscribership.

One, possibly significant, limitation in terms of credibility is whether the participants in the reflective discussions, and in particular those posting the original descriptive narratives, find the analysis of the discussions and the results a credible account of the processes in which they were engaged. This was not explicitly tested in this study, although some of the participants in the interviews on reflection, had been participants in some of the discussion threads analysed, and the views they expressed on the existence of reflection can be taken to be supportive of the results being credible. A future extension of this study should examine this area, either by presenting the results specifically to participants in the reflective discussions analysed in this study, or by conducting a similar analysis on another group of discussion threads.

In terms of transferability, one can identify potential limitations, but must also accept that many qualitative studies, by their very nature, may not be transferable in terms of either results or methods. This particular study has a number of potential transferable elements, including the methods used and the applicability of the results and the model developed to other online discussion forums. Whether the model of online reflective interaction derived within this study can be applied to other listserv discussions awaits the findings of further research, both by myself, and by other researchers using the model and the methods

described in this report. I believe, from my own involvement with many other nursing discussion lists, and from the evidence already provided by participants in the study of their own involvement with other lists, that the model and the methods can be more widely applied, and that we will be able to demonstrate similar reflection within other nursing list discussions.

4.7 Chapter 4 summary

Within this chapter I have addressed some of the key conceptual, theoretical and methodological issues (Waskul and Douglass, 1996) pertinent to the data collection methods used within this study. In outlining some of the emerging trends within CMC research, in particular ethnographically-oriented approaches to the study of real online communities, and in showing how the approaches to and components of the study are situated within emerging trends within nursing research, I have indicated how the elements fit together to form the whole. I have discussed issues around, and indicated the approaches adopted here, to issues such as the quoting of CMC content and the validity and generalizability of the findings. In all of these areas, the positions taken in this study are congruent with other aspects of the study, in particular the philosophical framework.

Now that these issues have been outlined, and a description given of the phases of data collection, it is time to turn to a presentation and examination of that data. The following two chapters accomplish this, before the story concludes in Chapter 7 with a summary of the results.

Chapter 5

NURSENET: a treasure trove of scientific and archaeological data

...just as no single set of disciplinary guidelines is appropriate for all research paradigms, it is difficult to imagine any single set of guidelines that could appropriately reflect the nature of the interaction in all of these different genres Herring (1996a)

5.1 Introduction

This chapter and the next present the data collected by the mechanisms outlined in Chapter 4. As is the inescapable nature of the presentation of such qualitative research, this chapter will interweave the data with analysis and discussion of their significance. A synthesis of findings from the data collection and analysis will then be discussed in Chapter 7, which will integrate all the elements of the study and show how the questions posed have been answered.

The first data presented (section 5.2) were collected over a six year period, giving seven points of data capture. These illustrate the evolution of NURSENET in terms of the numbers of subscribers, their levels of activity, and, to a lesser extent, their views on the nature and value of the online community that many see NURSENET as providing. These data are important, not least from an ethnographic perspective, in providing the context of the other data, and in demonstrating the safety of disclosure that many subscribers feel, and that will be discussed as one of the features of this kind of forum.

The second data set (section 5.3) derives from the initial questionnaire sent to NURSENET subscribers, focusing on the aspects of the data that relate to the main areas of the research, i.e., whether respondents had used, within their own practice, any information that they had gained from NURSENET discussions. This section is followed

by presentation of material from the Virtual Focus Group (VFG) discussions (section 5.4), again focusing on the discussants' views on the potential of the CMC medium to provide opportunities for learning.

The next data presented (section 5.5) derive from the second survey of NURSENET subscribers, focusing on ways in which they had used NURSENET and other discussion forums, as well as the wider Internet, within their practice. Concluding this chapter, a detailed examination of the email interviews with NURSENET subscribers is presented (section 5.6). The issues raised and examples provided in this examination of their views on the presence, or otherwise, of reflective discussions on the list, lead into the presentation and analysis of the main corpus of discussion threads, in Chapter 6.

All of the direct quotations used are anonymised; this is in keeping with the general convention of most discourse and content analysis work, both on CMC and on other forms of non-electronic interaction. Direct quotes from participants in data collection activities in this and the next chapter have generally not been corrected for spelling, punctuation, etc., but have been used verbatim. In some instances, some tidying has been undertaken (e.g., changing all capitals to lower case). As Herring (1996a) notes, it is the patterns and commonalties uncovered that are important to the research, rather than the precise contributions of any given individual, although verbatim examples to illustrate the phenomena under examination are necessary.

5.2 NURSENET, 1994-2000

NURSENET was established in late September 1993, the listowner residing then, as she still does, in Canada. It was set up to be a global forum for the discussion of nursing

issues, and established at a time when few other nursing lists existed. In the time since its establishment, it has retained this global and general approach, at least in principle, but as will be seen from the data, not always in reality. The broad range of discussion issues has remained, while many other lists have since been established with more focused audiences and subject areas.

This section presents data on list demographics collected over a six year period, giving seven points of data capture, together with some analysis of the levels of message traffic on the list. Since the original data collection for my MSc study, taken from two consecutive days of digests in 1994, similar digests have been collected each year since. These digests are not intended, nor purported to be, representative samples of the digests over the year. On some days, message traffic can be very high, with up to 120 messages in any one 24-hour period, while on other days only one or two messages might be sent. The digests are illustrative, and the trends noted over the six-year period are also illustrative, rather than necessarily representative.

At the end of my MSc dissertation, I speculated, perhaps too rashly, on the future nature of NURSENET and its discussions. It is worth quoting the closing sentences of the dissertation, to provide a starting point to contrast the reality of changes with early speculations, indeed hopes, as to how things might develop:

Two years hence, the nature of the discourse on Nursenet may be totally different, due to factors including contributions from more subscribers in total, and more subscribers from different parts of the world. In the 4 months between the creation of the corpus and the final writing of this report, the number of subscribers to Nursenet has increased by 22% world-wide, and by 117% in GB [...]. More nurses are seeing the benefits of and are able to participate in on-line communication with their colleagues around the world. Nursing can only benefit from this increase in sharing of knowledge, information and ideas.

(Murray, 1995b)

The benefit of that invaluable research tool, hindsight, shows that I was over-optimistic in my expectations of, or wishes for, the growth of nurses' use of CMC. In the two years following the writing of those words, some of the changes I predicted did occur, for example in the initial rise in the number of subscribers. In subsequent years, my predictions in relation to NURSENET have been shown to be less accurate, as will be seen in the figures presented in Table 5.1 and the discussion thereof. However, if we consider the vast increase in the number of nursing and health discussion lists that has occurred in recent years, then the total numbers of nurses participating in such discussions over all the lists has certainly increased greatly. This has resulted, I believe, and as some of the data collected from other nurses within this study shows, in benefits from sharing knowledge, information and ideas.

Table 5.1 summarises the data collected during the period 1994-2000, which included:

- the number of messages in each two days' digests, together with the number of lines of text (as calculated by the listserv software), and a calculation of the average number of lines per message;
- the number of subscribers to the list for the month in which the digests were collected, together with the number of countries from which subscribers derive, at least in terms of email addresses used;
- other data derived from the digests, to be described later.

The total numbers of messages for each two-day period show that the list is relatively high volume, ranging from 30 to 150 messages over a two-day period. There seems to have been a general upward trend in volume of messages, at least over the late 1990's, although then there has been a sudden drop in the latest figures, for 2000. This 2000 figure is not an isolated aberration, as through my own daily involvement in the list, I

Table 5.1 Summary of six years data from NURSENET.

Parameter	1994	1995	1996	1997	1998	1999	2000
No. of messages in 2-day snapshot (1)	70	104	57	80	102	150	30
No. of lines	2089	3463	1504	2982	4051	5377	1109
Mean lines per message (2)	29.8	33.3	26.4	37.3	39.7	35.8	37.0
Subscribers, total (3)	1237	1873	1593	1362	958	785	816
Subscribers, US (inc. .com etc.) (4)	62%	65%	75%	79%	80%	84%	83%
Subscribers, Canada	23%	19%	14%	12%	11%	9%	10%
Subscribers, Australia	7%	6%	5%	4%	3%	2%	3%
Subscribers, UK	1%	1.5%	1%	1%	1%	1.3%	0.9%
Total countries represented (5)	20	26	23	23	23	18	17
No. of subscribers posting messages in 2-day snapshot	46	72	45	54	61	57	25
No. of subscribers posting 1 message only	35 (76.1%)	52 (72.2%)	34 (75.6%)	43 (79.6%)	41 (67.2%)	23 (40.3%)	21 (84%)
Messages by male subscribers	20 (28.6%)	25 (24.0%)	16 (28.1%)	5 (6.25%)	18 (17.6%)	23 (15.3%)	2 (6.7%)
Number of male subscribers posting	9 (19.6%)	15 (20.8%)	13 (28.9%)	5 (9.3%)	12 (19.7%)	6 (10.5%)	2 (8%)
US subscribers posting	22 (47.8%)	51 (70.8%)	35 (77.8%)	46 (85.2%)	55 (90.2%)	54 (94.7%)	24 (96%)
US messages (including ISP)	38 (54.3%)	76 (73.1%)	44 (77.2%)	68 (85%)	95 (93.1%)	144 (96%)	29 (96.7%)
Canadian posters	13 (28.3%)	16 (22.2%)	6 (13.3%)	5 (9.3%)	3 (4.9%)	1 (1.7%)	1 (4 %)
Canadian messages	18 (25.7%)	21 (20.2%)	7 (12.3%)	8 (10%)	5 (4.9%)	3 (2%)	1 (4%)
Australian posters	3 (6.5%)	1 (1.4 %)	4 (8.9%)	2 (3.7%)	0	1 (1.7%)	0
Australian messages	5 (7.1%)	1 (<1%)	6 (10.5%)	3 (3.7%)	0	2 (1.3%)	0
UK posters	0	2 (2.8%)	0	1 (1.9%)	1 (1.6%)	0	0
UK messages	0	5 (4.8%)	0	1 (1.3 %)	1 (1 %)	0	0
.edu .ac etc. – people	30 (65.2%)	38 (52.8%)	14 (31.1%)	12 (22.2%)	6 (9.8%)	4 (7%)	1 (4%)
.edu .ac etc. – messages	40 (57.1%)	50 (48.1%)	18 (31.6%)	18 (22.5%)	7 (6.8%)	5 (3.3%)	1 (3.3%)
.com .org .net etc – people	10 (21.7%)	30 (41.7%)	28 (62.2%)	42 (77.8%)	55 (90.2%)	53 (93%)	24 (96%)
.com .org .net etc – messages	23 (32.9%)	47 (45.2%)	36 (63.2%)	62 (77.5%)	95 (93.2%)	145 (96.7%)	29 (96.7%)

Notes on table:

1. the total number of messages in each 2-day sample, as included in the digests sent each day
2. mean number of lines per message for each message within the digest
3. subscriber total is taken from data sent to the list at the end of each month by the listowner in a posting titled 'The way we were on [date]'
4. number of subscribers with US email addresses; includes subscribers with .com, .net and .org addresses (see discussion of data)
5. total number of countries from which subscribers derive; see note 3 above

have noted a generally lower level of message traffic over the latter part of 2000 and into 2001, compared with previous years. An analysis of possible reasons for this fall is not within the scope of this study, but may be related to the large number of more focused alternatives available; future research may be of value in exploring these areas if the lower volume of messages is sustained.

The average number of lines per message has been calculated each year. The data show the relative stability of the message size, ranging from just over 26 lines per message, to just under 40 lines per message, despite the enormous changes in message software that have occurred over the period. In the mid-1990's, most subscribers appeared to have been using text-based email systems, while over the late 1990's there has been growing use of hypertext-based message software (often to the annoyance of some list members).

Of greater interest are the changes in the numbers of subscribers, their countries of origin and associated issues with being able to determine such, and gender mix of subscribers. In 1994, when the first data set for the MSc study was captured, there were 1237 subscribers, from 20 countries; 62 % were from the USA, 23 % from Canada, 7 % from Australia, and 1 % from the UK. A range of other countries, mainly within Europe, but with some representation from Latin America and Asia, had very small numbers of subscribers. There was a marked increase in the number of subscribers from 1994 to 1995, but then ever since, an apparent gradual decline, to the subscriber base stabilising at around 800 during 2000. I say apparent decline advisedly, as discussions with the listowner suggest that features of the listserv software may have artificially inflated the figures from earlier years, up to about 1997. Since 1997, inactive subscribers, for example people who have subscribed, then suspended their active subscription by setting their

options to “nomail” have been removed from the list after a period of time, and recent figures are believed to be a more accurate estimate than were some of the earlier ones.

As Table 5.1 indicates, the majority of subscribers, both in total numbers and as a percentage, have always been from the USA. This percentage has increased over the six years, from 62 % in 1994, to almost 84 % over the past year. More notable has been the increase in the percentage of list messages originating from the US subscribers, which has risen from 54 % in 1994 to over 96 % in 2000. This means that less than 4 % of list messages are contributed by the approximately 17 % of subscribers outside the USA.

One possible confounding factor in the accuracy of these figures has been that the listerv software is unable to distinguish the actual country of origin of email messages sent through ISP (Internet Service Provider) accounts that have a .com, .org or .net domain. Subscribers with such addresses are included in the US figures. However, having examined a large number of messages from subscribers with such addresses for other detail, it is apparent that the vast majority of them are actually US-based subscribers, and so the figures are reasonably accurate.

This raises the issue of why there should have been, over the years, a concentration of subscribership in the USA during a time in which levels of Internet access have increased for many nurses in other parts of the world. This concentration of subscribers within the USA is also evidenced in the change in the number of countries from which subscribers derive, with a rise from 20 to 26 between 1994 and 1995, and then a decline to only 17 in 2000. This trend is curious when set against the espoused intentions of the list, i.e., to be a global forum, and when questionnaire data gathered from subscribers shows that apparently a common reason for subscribing is to seek the international discussions and

comparisons of practice that the list facilitates. For example, respondents to the second round of questionnaires made comments such as:

I am presently able to converse with a nurse from Brasil, which furthers my culture of the world beyond my own. (NQ99:23)

Communicated how nursing is around the world. It sounds like nurses have the same problems everywhere lately. (NQ99:25)

I keep current with the local, national and international nursing scene via the net (NQ99:26)

Many respondents specifically indicated that they used NURSENET and other online facilities to obtain an international perspective to their practice, and described how they were exposed to different ideas and perspectives and developed increased awareness and insight into professional issues. Some described how, through NURSENET and other lists, they had been able to challenge assumptions and had been exposed to debate which they would not normally be part of. Others described being able to compare and contrast models of service delivery and outcomes in different countries (Lakeman and Murray, 2000).

One possible reason for the increasing US focus on NURSENET is the proliferation of more focused lists, wherein nurses with interests in specialist areas of practice can discuss practice issues with colleagues from other parts of the world. The NURSE-UK list, for example, is intended for UK nurses and issues, while other examples of this focus are provided by, among others, McCartney (1998b). A more likely explanation, with some evidence from messages sent to the list by subscribers explaining why they intended to unsubscribe centres on the self-reinforcing nature of the phenomenon. As the majority of members are sited in the USA, the majority of discussions will naturally focus on US-oriented practice issues, and while subscribers from other countries may have elements to contribute when comparing practice, much of the discussion may not be relevant to the specifics of their own practice. By a cycle of reinforcement, subscribers from other

countries see less relevance to being on the list, especially one that can have such a high volume of messages.

The distribution of subscribers among different countries is not an unusual pattern. Rojo and Ragsdale (1997), in an examination of 12 discussion lists, found a similar distribution of users' address, i.e., USA 64.2 %, Canada 16.6 %, UK 3.7 %, Australia 3.7 %. They found that less than 1 % of subscribers were from outside the combined areas of North America, Europe and Australia/New Zealand.

The gender mix of subscribers and message contributors was addressed briefly in the MSc study and it is worth making a few additional observations in relation to this data. This is especially so as much of the early CMC research (such as the examples discussed in Chapter 2) has focused on predominantly male subjects, and the popular media, at least until recently, has focused on the apparently male-dominated nature of much of the Internet. Nursing is predominantly a female profession; while reliable figures are still difficult to obtain, in North America and the UK, less than 10 % of nurses are male, and most nursing discussion lists have overwhelmingly female subscriber bases. It is due to such factors that one must question the applicability of the findings of much CMC research that has been undertaken on mainly male subjects to online discussions in a profession that is predominantly female. As indicated in the discussion in Chapter 2, a number of CMC researchers have addressed gender issues, especially in terms of the nature of list discussions and the presence, or lack, of flaming on female-oriented or dominated discussion areas.

In my MSc study, the percentage of male subscribers to the list was calculated from the subscriber database; this data is now less readily accessible. In 1994, males comprised

approximately 21% of NURSENET subscribers, and, as shown in Table 5.1, contributed 28.6 % of the messages to that year's sample of digests. Since then, males have contributed between 6 % and 28 % of the messages to each year's sample. While some CMC researchers have noted problems with male dominance of discussion forums, it does not seem to have been an issue causing any problems on NURSENET. In contrast, Savicki, Lingenfelter and Kelley (1996), in examining the ProjectH dataset (a large study of 27 electronic discussion forums), found close congruence between gender proportions of subscribers and of messages contributions. They found that, where gender was determined, males were 72.8 % of discussion subscribers and contributed 74.8 % of messages.

Most list members seem to be, most of the time, passive recipients of the messages, rather than active contributors to discussions. While lurking, i.e., passive consumption of such electronic discussions, has been the subject of much discussion in CMC research, and is addressed from several aspects at various points in this study, I do not feel it to be as major an issue as do some. In most face-to-face group discussion environments, most of those involved lurk most of the time, and make occasional contributions. Indeed, most discussion forums, whether online or offline, would be impossible if all participants tried to actively contribute more frequently than they do. In addition, there is an assumption, one that I believe has been insufficiently challenged in the research, of lurkers as passive recipients, rather than actively engaged in reading. Reading cannot be assumed to be passive. Much reading, whether online or offline, can encompass active engagement, thought, even reflection on what has been read. The fact that it does not elicit an overt contribution to the discussion forum should not, as has generally been the case in CMC research, be taken to assume lack of such engagement, or of learning. This is another area

that richly merits much more research, although some examples of participants in this study holding similar views are provided, for example in the VFG data (section 5.4).

The above said, it can be noted that, as in most discussion forums, a majority of subscribers do not contribute to the discussion list in any given time period. Of those who do contribute, most tend to make only a small number of contributions, while a small number of active subscribers provide a larger proportion of message contributions. However, I cannot recall a single instance from six years' membership of the list, when it was felt that any individual, male or female, was dominating the list discussions. As Table 5.1 shows, of the number of subscribers who do contribute within the two-day sample, the proportion has been generally stable, with 70-80% of them contributing only one message. Preece (1998) in examining a discussion forum for a specific health issue (similar to the type of community studied by many recent nursing studies) found similar results. Most subscribers providing input to the discussions contributed only one message in a given period, while a small number were frequent contributors. Aoki (1995) also demonstrated similar patterns of use in Japanese online communities, i.e., small numbers of heavy posters and most posting once if at all in CMC forums.

In summarising the earlier study on NURSENET, I noted that:

Subscribers are predominantly female, from North America, and use educational e-mail addresses. Most contributors are nurses working in educational settings, mainly as teachers but with some students, or in some aspect of management. Few qualified nurses working primarily in direct clinical care currently contribute to the list. (Murray, 1995b)

The proportion of subscribers using educational email addresses has declined substantially, which probably simply reflects the increasing ease with which email access from home is now possible for many nurses, and especially for clinically based nurses. As

some evidence from the proportions of respondents to the second questionnaire (section 5.5.1) indicates, this proportion has been changing in the latter part of the 1990s. Today, a higher proportion of subscribers appears to be nurses working in clinical environments, directly or indirectly in patient care.

The data presented so far give a partial picture of the subscriber base of the list, and provide some of the context for the study and the nature of the community that is NURSENET. In terms of how a community is defined, whether offline or online, as discussed in Chapter 2, the NURSENET list has many features that qualify it as a community. In closing this section of the data, examples of the benefits derived from list membership provide illustration that list members themselves feel part of such a community.

Each year, on the anniversary of the founding of the list, the listowner sends a “virtual birthday card” to the list, reminding subscribers how long the list has been in existence. This has been, in recent years, followed by a number of unsolicited messages from list members describing the benefits they feel they derive. The monthly subscriber data have also, on occasion elicited discussion of the benefits to members of being on the list. These have included:

I love this list, serious or frivolous, and only wish we had more international subscribers participating. I adore the cultural differences (wee holes) that we get to see.

As far as I am concerned, the contents of nursing listservs are a treasure trove of perfectly preserved scientific and archeological data, that should be properly examined , triaged, preserved and archived for it's cultural, scientific, and historical value. For those who take the long view, when we look back on this time in the history of the art and science of nursing, we will see it as one of those significant "turning points".

I am still relatively new to the list and to the internet, but I can tell you that much of what I read is either taken to work and repeated...or printed and shared...every one I worked with was interested in what was happening across the continent.

Having provided and briefly examined some of the data around the NURSENET community, it is appropriate to move on to consider aspects of the use of the list. These are more directly grounded in the words of the subscribers themselves, although will obviously be filtered, to some degree, through the prism of the researcher, in their presentation.

5.3 First NURSENET questionnaire

5.3.1 Demographics of respondents

The first questionnaire to a sample of NURSENET subscribers was designed to explore issues around their use of the list, and to help provide the focus and precise direction of the research. Of 111 subscribers sent questionnaires by personal email, 26 responses (23.4 %) were received. Of these, 5 (4.5 %) were error messages stating that the email was undeliverable, 3 people (2.7 %) declined to participate (and, as they had been promised, their reasons were not pursued). 18 people (16.2 %) answered the questionnaire and provided usable data sets, although this represents only 1% of the list subscription. This is actually a good response rate for email questionnaires, from both my experience of the nursing discussion lists (the listserv owner for the NURSENET list also states this is a good return) and the return rates cited in other published CMC studies. This study is not designed to provide necessarily any kind of representative sample, but focuses on the actual responses of participants.

Most respondents were in the 31-40 age range (Table 5.2), with 12 of the 18 (67 %) being female, and 14 (77.8 %) being qualified nurses, while 3 (16.7 %) were nursing students on a course leading to initial registration and 1 (5.5 %) was not a nurse.

Table 5.2 Questionnaire respondents by age.

Age range	20 or less	21-30	31-40	41-50	51-60	61 or over
No. of respondents	1	3	9	4	1	0

Six respondents (33.3 %) described themselves as working mainly in direct patient care, and 4 (22.2 %) as working mainly in a teaching post. Generally, the highest level of academic achievement was Bachelor’s degree, although 4 (22.2 %) had Masters degrees and 2 (11 %) had Doctorates. This seems to indicate a greater level of participation by clinically based nurses in this study, as opposed to the educators who predominated the sample in the MSc study.

Table 5.3 Summary of list size, sample and respondents for first NURSENET questionnaire.

Region	Subscribers	Sample size	Respondents
USA	1309	65	8
Canada	290	15	4
Australia/New Zealand	96	5	0
Great Britain	32	2	2
Europe (exc GB)	55	18	3
Rest of the world	16	8	1

Table 5.3 indicates the geographic area breakdown of NURSENET subscription at the time of the questionnaire, the numbers of subscribers sampled in each area, and the number of respondents from each area. While the greatest percentage of respondents from any one country was from the USA, with 8 of the 18 (44.4 %), a reasonable spread of respondents was obtained from other countries, showing that the stratification of the sample was generally successful.

Ten of the 18 respondents (55.5 %) had been subscribed to NURSENET for under a year, with only 2 of the 18 (11 %) having been subscribed more or less from when the list

started. Eleven of the 18 (61 %) also subscribed to other discussion lists, generally subscribing to only 1 or 2 such lists (and some citing Usenet newsgroups as well as discussion lists). Almost exclusively, the other lists were nursing or health-related, or had direct relevance to the respondent's area of work. No respondent cited subscription to a list that could be obviously seen as relating to non-work interests, although it may be the case that some do subscribe to them, but that they did not think it relevant to mention in the context of the questionnaire.

5.3.2 Participation and reading

Most respondents said that they read about half to three-quarters of the messages from the list (which can produce over 150 messages per day). Looking at subject headers to see whether the message might be of interest is the most usual method of screening messages to be read and those to be left unread. Only 2 of the respondents received the messages in digest form. Individual responses indicating some of these issues are:

When I have the time I scan most articles, when time is at a premium, though, I resort to scanning headers (NNQ1-02)

I receive my messages in "digest" form so just read the topics. Unfortunately I have to scroll through the whole thing if there is something of interest but choose that way as it is too much mail to get in individual messages. (NNQ1-04)

Most respondents could be described generally as lurkers; over one third had never contributed a message to the list (except for introducing themselves, as was convention at the time), and most said they contributed rarely to the list.

5.3.3 Message genres

My previous study of the NURSENET list (Murray, 1995b, 1996) had identified a small number of message genres, which I summarised at the time as:

- a] contributions to a discussion;
- b] requests for information;

- c] answers to information requests;
- d] announcements (e.g., jobs, conferences, grant information).

At about the same time, but unknown to me until later, Roberts (1996) had been undertaking a similar study of UK medical General Practitioners' use of discussion lists, with similar findings. When presented with these genres and asked to identify which they found of most value or interest, many respondents in my study identified most of the genres as of some value. Requests for information and responses to such seemed to be of most value or interest, with announcements of least interest. A few respondents cited clinical and/or ethical issue discussions, or materials related specifically to their own areas of practice and interest as being of most value; one respondent indicated, for example:

My area of interest is Geriatrics and women's health, so anything about these 2 areas I read. I enjoy following a humourous line about anything. Web sites, journal articles or any resources for possible use for my studies are always valuable. (NNQ01-21)

When asked about message genres found to be of least value or interest, contributions to a discussion and announcements were cited exclusively. One intriguing issue that emerged was that 6 of the 18 respondents (33.3 %) said that they found "contributions to a discussion" of least value or interest. This may reflect some confusion caused by the wording of the genre descriptions, as requests for information and answers to them, in effect, form many of the discussions. However, some of those who indicated that they found some of the discussions of least interest or value qualified their responses. They indicated that flames, complaints, extremist views and arguments or discussions that became personal attacks on the views of those expressing them were the types of discussions they did not like.

5.3.4 Time spent online

Respondents were asked how many hours per week they spent on various activities,

including reading NURSENET, other lists and email, and using the Web. Most seemed to spend 1-2 hours per week reading NURSENET, and under 3 hours on their total email. Web use, at this time (1996), was fairly low, with few indicating they spent any time in unstructured “surfing.” When asked about educational purposes for which they used the Web/Internet, responses included:

research specific topics (NNQ01-6)

Courses at the free university, researching job-related information, accessing the local library,... (NNQ01-10)

looking for information from my home country ... news etc. (NNQ01-18)

I often search for resources to use in research papers, and class projects. (NNQ01-21)

One respondent stated

“it is all education.” (NNQ01-17)

5.3.5 Reasons to subscribe

Respondents seem to have had a range of reasons for first subscribing to NURSENET, although they seem to fall into three broad areas, i.e.,

- curiosity:

Curious about what it was all about and a nursing professor suggested to my class Nuresnet might be valuable. (NNQ01-21)

curiositi and share some experiences. (NNQ01-22)

- looking for general or specific information:

I was serving on an interdepartmental committee concerned with employee performance appraisals and questions were raised about how evaluations are conducted for agency nurses, and I volunteered to seek information from other hospitals through NurseNet. (NNQ01-12)

Looking for a discussions/information/wide horizon (NNQ01-9)

Many of the discussions revolve around current health care issues and information. So I felt that it was a way for me to gain knowledge and learn about different approaches. (NNQ01-13)

- to stay in touch with nursing and nurses around the world

stay up to date in the field – especially in clinical and theory issues(NNQ01-6)

Interest in the nursing community worldwide(NNQ01-10)

It seems that, even at that this relatively early stage in the life of the list and in the development of skills and awareness among the majority of nurses of the potential of such discussion forums, some were recognizing the potential for education and learning opportunities, in their widest sense.

5.3.6 Benefits from the list

When asked what they felt they gained from subscribing to the list, respondents seemed to fall into two camps, with a minority feeling that they gained very little from the list:

Unfortunately not much. I've received some info though, and some new friends. (NNQ01-3)

I don't get much from it. I find the discussion usually nonproductive and difficult to follow (NNQ01-16)

Of those who did feel they gained, most cited the international aspects and gaining insights into other ways of viewing or doing nursing:

I gain perspectives from other health-care workers in various geographic areas on health-care-related issues. (NNQ01-12)

.....A better understanding of nursing around the world. How similar nurses' problems are around the world. (NNQ01-21)

A better perspective, better access to information, and contact with a diverse group of arguably the most caring people in the world. (NNQ01-10)

Some provided answers that can be seen to support the potential of such a forum for exploring practice issues, through reflection and informal learning:

Seeing other points of view, other than my own (NNQ01-9)

professional interests, education, international (NNQ01-17)

Information about what other nurses are experiencing at work, opportunity to ask clinical questions and share my clinical experience with others. (NNQ01-20)

An additional insight provided by one respondent said:

Lots of info, easy way to contact people, and the "golden rule"- not everyone is really an "expert" so take what they say with a grain of salt,... (NNQ01-24)

Very few respondents had taken any kind of online nursing-related courses, of which then few existed, but most said that they might be interested in such at some time in the future.

5.3.7 Early evidence of reflection

At the time the questionnaire was developed, I was already starting to focus the research on CMC for less formal and structured educational purposes, and in particular on the integration of theory and practice through reflective practice and critical thinking.

Respondents were asked, in light of these aspects, whether they could provide specific examples of information gained from the list that they had used in their own area of practice. The question asked was:

Can you give any specific examples where you have used any information gained from the list in relation to your nursing practice (in whatever field you work)?

A range of answers was provided, including using the material in a nursing article the respondent was writing. Many of the answers suggested elements of sharing the information gained with other colleagues, and of using it within practice, rather than simply obtaining it for its own sake:

While researching a care pathway for our weaning unit I was able to ask for and receive feedback from nurses at other institutions concerning clinical pathways. (NNQ01-10)

I developed a skin integrity risk assessment form for our institution and need to contact Barbara Braden to get her copyright approval for using her "Braden Scale" of skin assessment. I got her thru internet and the process was made much quicker. I have numerous times posted requests for info and gotten some good contacts thru internet. ... (NNQ01-24)

I have shared questions or information re clinical practice or teaching strategies discussed with my colleagues (NNQ01-25)

While these examples can not, perhaps, be said to be overt examples of reflection, they do contain elements congruent with a reflective framework. Two examples that more overtly indicate degrees of reflection were:

I've asked a lot of questions regarding some of the suggestions and methods that I have read about on the list. (NNQ01-13)

Over 80% of the respondents considered that having Internet access was important to their job, with over 85 % stating that having Web access was important to them in keeping up to date professionally. Some of the issues raised from this first questionnaire recur in the later data sets, such as learning while lurking and professional development. They were among issues explored by participants in the VFGs, which are discussed next.

5.4 Virtual Focus Groups

5.4.1 The place of VFGs in the study

The establishment of the Virtual Focus Groups (VFGs) has been described in Chapter 4. Many issues were explored within the groups, some of which were more concerned with formal educational contexts than with the informal learning and reflection that is the focus of this study. The experience of conducting the groups, guidelines for the conduct of such groups, and potentially transferable lessons for other aspects and uses of CMC have been described elsewhere (Murray, 1997a, c), and the focus of the data presented here will be on those elements pertinent to this study.

While I have suggested some guidance for the use of VFGs, based in my own research experience, I do not wish to be overly prescriptive. To do so would be inconsistent with my general philosophical approach, in that:

- as there are many forms of offline focus group (Stewart and Shamdasani, 1990), and ways in which they can be conducted, there will be at least as many online equivalents;
- computer and communications technologies are changing rapidly; any attempt to generalize from one form of VFG using one type of communications technology

(i.e., email-based discussions) is not necessarily appropriate in respect of other existing or new technologies; and

- as I am attempting to work with a critical, postmodern and post-structuralist research framework, then of necessity I do not subscribe to the wide generalizability of findings or methods, but to their contextual nature.

5.4.2 Demographics of participants

Many of the participants in the VFGs were pioneers in the use of CMC within nursing, especially listservs, and of developing online education within nursing. In the mid-1990's, they were implementing uses of CMC and online education within their teaching, things that 5-6 years later, many nurses and nurse educators are only now starting to explore, and still relatively few to implement:

VF01A: interested in Distance Education for nurses comparing students' experiences in audioteleconference and correspondence offerings of nursing issues courses.

....have taught one section myself using CMC.

.....This year, they are relying heavily on a website for transmission of materials and for course questions and discussions. While it is going much better this year, there are still problems with access for students in really remote locations

VF01C: I have used the Internet for class assignments for the last two years and just starting using our local class listserv to post clinical case studies for discussion by my class of 80 students.

VF02C:.. we are using a listserv discussion as part of a nursing theory course.

VF02E: I integrate the use of computer mediated communications and learning activities within both of these courses.

My major focus as an educator is in the area of critical thinking and curriculum reform in nursing education... and the development of students' thinking abilities.

Several of them lived and/or worked in rural and remote areas, and the work they were involved with showed the reality of implementing what has often been cited in the rhetoric of CMC, i.e., of providing benefit to people, including nurses, based in remote and rural areas. This latter point is illustrated in the participants' own descriptions of themselves:

VF01B: Last Summer I created and implemented a Virtual Seminar in Rural Nursing on the Web. The conference complimented the concurrent onsite and teleconferenced Seminar that connected local nurses with nurses throughout the world.

VF01E: ... I teach nursing and health science (grad and u/g) in ... a rather isolated area of the country

5.4.3 Lurking

The issue of lurking has already been briefly addressed, and it has been noted that, of necessity for the functioning of such lists, the majority of members must always be lurkers most of the time. The term lurker is sometimes invested with a pejorative meaning in discussions of CMC, one that I feel is generally undeserved. While the question of whether the majority of lurking list members derive benefit from the reflective discussions that they read was not one of the main questions posed in the research, it is an issue that emerged at times in the data.

Here, some of the participants in the VFGs provide their views on the nature of lurking, and its role within education.

VF01B: Lurking can be a style of learning when a professional is still in an information gathering stage of a topic or getting the "feel" of a group. I often lurk in a topic until I know enough to pose an intelligent question or comment. Lurking is probably more common when we are unfamiliar with the group members and want to get a sense of the level of knowledge being exchanged. One of the beauties of many cmc interactions over f2f is that you can stick your head in the door and check out the discussion and leave without appearing rude.

VF01E: ... this week several students shared how much they had learned from lurking on listservs - not just content, although that occurred, too, but the process of posting and responding to messages, the politics of the listserv, identifying content experts, etc.

VF01D: Incidental learning may be the only significant kind of learning that exists, so should be encouraged in every possible way. I remember the halcyon days of my youth, where I was able to attend meetings and presentations of the Royal Society I was certainly a physical lurker in many senses, but my learning was enormous. So, my vote, is not to "manage" lurking, but to encourage it.

VF01B: The possibility for active learning there but I think the prevalence of lurkers alludes to a lot of passive learning taking place as well.

VF01D: Perhaps it is time to define terms!If the only learning that occurs is "passive", is this not better than no learning at all? Having proudly been a lurker at live events and cyberevents, I can testify to the enormous amount I learned. My learning was more to do with the level of discussion rather than my opening my mouth

VF02C: But then, in a well functioning list we all lurk much of the time - if we don't we monopolize the conversation. Also, if we don't listen we don't learn what others have to say. And that to me, is the reason to take the time to be on a list.

It appears, then, that many of these nursing experts in CMC could identify several potential educational benefits to be derived from lurking in discussion forums.

5.4.4 Incorporating online gains into offline work/life

In the questionnaires completed by NURSENET subscribers, one of the issues explored was whether the information they had obtained had been used in any way within their offline work. This is one of the major questions to be asked about reflection if it is an active process, congruent with the views of Kemmis (1985), rather than passive navel-gazing. Within the VFG discussions, while a specific question was posed on the issue, it did not elicit a great deal of discussion. Such thoughts as were provided included:

VF01F: I'm always happy when some one shows me what they got off the web, but it's not widespread and what I heard from u/g students last week was that "I don't know how to uise the computer very well to browse, so I went back to my textbook to prepare my teaching plan" (due the next day) IMHO early adopters see the potential and stick it out til it works

VF01E: Don't know how one would measure this - it's a moving target with the growth of the web and the increasing ability for more nurses to access the web... unless some large, longitudinal studies are initiated, I don't know how we would find more than regional anecdotal evidence.

5.4.5 CMC and professional development

The possibilities for informal electronic discussion forums, such as listervs, to provide an environment for nurses to meet their lifelong learning and professional development needs is one of the issues explored within this study. It was one of the issues that the VFG discussions were designed to address, drawing on the experience of the early adopters and pioneers in the use of CMC within nursing.

Many of the participants in the VFGs clearly saw such potential, and some saw examples of it already happening in the mid-1990's, although with some limitations:

VF02C: I see this already happening. At present several places have text-based CMC on line - the University of Maryland is one such place. But it is no different than the magazine articles that are used for continuing education.....

VF02A: Nevertheless, CMC is nursing's future. It is the best way to promote nursing unity and standardization of nursing practices around the world through education and dissemination of information through email discussion groups, newsgroups, forum areas.....

VF02C: I believe that CMC definitely promotes freer flow of information. Also the answer to questions that otherwise might not be answered. - but CMC permits you to see that things are done differently in other locales. One of my favorite tales involves a question asked about who is "allowed" to insert a specific type of catheter in your institution. The answers ranged from only special doctors to any nurse! Is this not the type of experience that gets one to thinking that possibly some of our cherished procedures are more politically motivated than research based..... Also, finding that you are not alone in thinking certain things gives you the courage to keep thinking it, and yes, to perhaps start acting in accordance with your thoughts.

The variability in practice raised by participant VF02C is an issue that occurs frequently within the examination of the main corpus of threads and will be discussed further there.

Other examples are based within participants' own experiences:

VF01D: My own professional development has accelerated greatly over the time that I have been using CMC and Internet, mainly in the areas of collaboration and ease of communication, and my ability to stay current and informed. I could not cover this ground with FTF strategies....

VF02E: I integrate the use of computer mediated communications and learning activities within both of these courses. My major focus as an educator is in the area of critical thinking and curriculum reform in nursing education.....I have become committed to expanding my knowledge of this medium and can see distinct advantages for the advancement of the nursing Profession through the use of computer based communications. I suggest that this focus group is such evidence that nursing is undergoing a transformation in its connectiveness. I could not have envisioned even a year ago we could meet and form an international research focus group.

On the issues of reflection and critical thinking, which were not central to the VFG discussions, one participant explained what she saw as the potential within CMC as opposed to face-to-face communications:

VF01B: I think that if depth of critical thinking ratios are more positive, it may be related to the CMC participant being able to "digest" the information presented at their own pace. In f2f communication, there may not be time for the participant to reflect and analyze a concept or topic before the presenter moves the conversation along. The ability to ask a clarifying question may be more difficult especially when a f2f meeting has time boundaries and/or levels of knowledge varies. In f2f meeting discussion tends to occur among the most knowledgeable and vocal outgoing members.

5.4.6 Illich, Dede and online/distance education

In closing this section dealing with the VFG discussions, I wish to briefly introduce a

more theoretical and philosophical perspective provided by one of the participants. While the comments were almost an aside to the main discussions, and the issues raised cannot be explored in detail within this study, nevertheless, they provide some similarity to the elements of the framework developed within the next chapter.

One VFG participant said:

VF02C: I am afraid that students (in the US anyway) come to us with the mind set that learning involves being told what to do and when. If we are to create life long learners we need to teach learners how to diagnose learning needs and how to find the "treatment" for these needs. ... it may involve finding resources, either on line, print sources, or even other individuals.

...Illich's "Deschooling Society." proposed four different approaches to learning.

1. A reference service for educational objects, sort of a catalog of objects and experiences that are available for learning.
2. Skill exchanges in which persons interested in serving as models for others list their skills and the conditions under which they are willing to help.
3. Peer-matching - a communications network that helps to match individuals who are interested in learning the same thing so they can share in the inquiry.
4. A reference service for what he calls professional educators. These are individuals experienced, not in pedagogy, but in the skills of facilitating learners when they encounter rough spots.

This system places the responsibility for learning on the student, not an educational institution. When Illich wrote his book computers for the masses were still in an embryonic stage. But today computers could make his dreams a reality. I believe that mailing lists are a small part of this picture - I have received much helpful information from them and seeing their popularity I think that others do too. It was these thoughts that I had in mind when I started a list.

The four approaches identified by Illich (1976) are similar to the three-part framework model developed by Dede (1996) of ways of understanding the potentials within new technologies for distributed/distance/open learning. Dede suggested that

- knowledge webs;
- virtual communities; and
- shared synthetic environments

were the areas that would be most useful in educational terms, and that the core skill needed is not the ability to find data (forage) but to filter the plethora of materials that might be encountered.

Illich’s (1976) four approaches, as the VFG participant noted, have many elements of similarity with what is occurring within online educational environments, and, as will be seen in the discussion of the analysis of the list threads, with elements occurring within the reflective discussions. We have a reference service for educational objects and professional educators within the Web, but also in the archived discussions from lists such as NURSENET. Online communities provide one mechanisms for accessing skill exchanges in which persons interested in serving as models for others list their skills and provide access to peer-matching - a communications network that helps to match individuals who are interested in learning the same thing, so they can share in the inquiry.

5.5 Second NURSENET questionnaire

5.5.1 Demographics

A total of 28 NURSENET subscribers responded to the questionnaire. More responses were obtained within a shorter period of time in comparison with similar studies undertaken in the mid-1990’s (Lakeman, 1998; Lakeman and Murray, 2000; Murray,

Table 5.4 Responses received according to country and list.

COUNTRY	NO. OF RESPONSES AND PERCENTAGE OF TOTAL SAMPLE
USA	16 (57 %)
UK and Ireland	0 (0 %)
Australia	1 (3.5 %)
New Zealand	1 (3.5 %)
Canada	4 (14 %)
Others	Singapore 1 (3.5 %) Switzerland 1 (3.5 %)
Not determined	4 (14%)
TOTAL	28

1996). Table 5.4, adapted from Lakeman and Murray (2000), indicates the geographic spread of respondents.

The majority of respondents were from the USA. The “not determined” were very likely from the USA, taking their total to 81 %, and these figures reflect the dominance of the list by US subscribers at around that time as evidenced in the data on list subscribership provided by the listowner (Table 5.5).

Table 5.5 NURSENET list subscribership at same time as questionnaire.
(from: The way we were on 31 January 1999 – email to NURSENET list from the listowner)

COUNTRY	PERCENTAGE OF NURSENET SUBSCRIBERSHIP
USA	81%
Great Britain	1.3%
Australia	2.5%
New Zealand	0.9%
Canada	10.9%

Table 5.6 Experience of using NURSENET and the Internet.

	Up to & inc. 3 months	4 months to 1 year	13 months to 2 years	25 months to 4 years	5 years or more
Time using Internet	0	0	4	11	13
Time subscribed to NURSENET	1	6	9	9	3

As indicated in Table 5.6, most of the respondents were experienced users of the NURSENET list and of the Internet, with 24 of the 28 respondents (85.7 %) having used the Internet for more than 2 years. Only 12 of the 28 respondents (42.9 %) had been subscribed to NURSENET for over 2 years, although 21 of the 28 (75 %) had been subscribed for more than a year.

The respondents to the questionnaires came from a wide range of practice environments. Some were educators, of which most had a role that involved some element of clinically based education, some worked in administrative roles in hospitals or universities, but the majority worked in a predominantly clinical role. The range of clinical roles demonstrates the expanding areas within which nurses now practice, as they included not only hospital-based nurses, working in areas such as critical care and trauma (A&E), but also hospice nursing, occupational health, practice nursing, community healthcare, and telephone triage.

5.5.2 Uses of NURSENET and the Internet

Respondents were asked for what purposes they used NURSENET and the Internet.

Uses of the Internet and of NURSENET and other forms of CMC fall into a number of broad categories, including:

- contact and discursive interchange with other people (for social and professional purposes);
- information requests, searching and exchange;
- research, in general terms and for specific purposes;
- access to others with similar (and divergent) views;
- for educational purposes, both formal and informal, and from the perspectives of both students and education providers;
- keeping updated on nursing issues; and
- recreation, entertainment etc.

It is useful to present examples within several of these categories, in particular the ones that have direct relevance to elements of reflective practice frameworks, as the answers provided have a great deal of similarity with those of the first questionnaire to subscribers. In respect of examples of “keeping updated on nursing issues”, respondents stated:

To keep updated on Nursing, Health, and other news(NQ99:5)

keep abreast of changes in practice and political issues(NQ99:6)

gathering information about how other areas deal with similar patient care (NQ99:13)

to keep in touch with concerns my fellow nurses have regarding our chosen profession. That is to keep a global view that things are bad everywhere and not just at my facility (NQ99:16)

Nursenet to see whats going on with colleagues, ask questions about practice, philosophy, etc. (NQ99:22)

Demonstrating some of the elements that will later be presented in examination of the model developed, one respondent gave a more lengthy explanation:

I scan Nursenet daily to keep up with what's going on in the profession. In some uncanny way, every time a bizarre question comes up in work, someone on the list posts about it—and I have answers to my question before I ask it. These answers frequently include references for the topic at hand. (NQ99:28)

In respect of the element “diversity of opinion”, specific examples cited included:

exposure to different points of view and beliefs, (NQ99:15)

gaining insight into the realm of nursing in other parts of the country and the world (NQ99:24)

There is obvious overlap between some of the categories identified, and other researchers may divide the results differently. While none of these results may be particularly surprising, and are consistent with the findings of other research, the particular emphases, and the frequencies with which certain of these areas are cited, may be particular to nurses and nursing discussion forums. Twelve of the 28 respondents (42.9 %), and so a significant proportion, made an explicit reference to using the Internet and NURSENET to maintain current knowledge of their professional world, while such use is also implicit in the responses and examples given by many of the other respondents.

Interestingly, while many mention searching and asking for information, and some even make specific reference to the sharing of information derived from the Internet with colleagues at a local level, almost none mention themselves as providers of information

(although this may be implicit in their contributions to discussions). Very few nurses explicitly stated that they had provided information in response to others' requests.

5.5.3 Changing use over time

A number of respondents had been members of NURSENET for several years. Eleven of the 28 (39.3 %) stated that their use of the Internet and of discussion lists such as NURSENET had changed little since they started using them. There was a tendency for those who had been users longer to say there had been little or no change. One of the major under-investigated areas in CMC research, in my opinion, is the effect of changes over time. This issue has been alluded to already in the discussion, primarily in Chapter 2, of the continued relevance, but continuing citation, of some of the findings of early CMC research. There have been very few longitudinal studies of CMC, and in particular of listerv communities, over sustained periods of time. This present study seems to be the first within nursing, and may be one of the first in CMC research generally to study a list over such a prolonged period of time. Although the longitudinal aspects are not a major element of the study, brief consideration of some of the issues, in part to highlight the need for further research, are pertinent.

About half of the respondents felt that their use of NURSENET had shown little if any change, over a period of several years, although a number qualified their responses.

Examples of these qualified responses include:

not really, except there is so much more pertinent information out there now. (NQ99:1)

not much,, except that I subscribe to *several listservs* and co-manage one. (NQ99:7)

Others identified a range of ways in which their use had changed over time. They seem to be influenced by the changing nature of the list itself, and of the broader Internet, particularly in terms of the changed amount and quality of information available, and so

the opportunities to access and use the resources. Some also indicated that they had become more actively engaged in CMC, moving from being list members to listowners.

Several mentioned that they now used forums such as NURSENET in a more collaborative manner:

I use lists to exchange information as I now respond more often than I used to.
(NQ99:2)

Some mentioned ways in which they thought use of NURSENET and other lists had changed over time, perhaps as the lists had matured, or as more people had developed more mature skills in usage:

Threads seem to be more focused. More long term care people on the NN. (NQ99:4)

Some cite what appear to be more opportunities for learning from lists, perhaps because of a range of the changes addressed above:

Yes, I have shopped around quite a lot, and prefer NURSENET to other general lists, such as sci.med.nursing. While the conversations can be repetetive, there is enough interaction and flow to make it worth my while to remain subscribed. I continue to learn from NURSENET and a few others, while those that remain stale I now drop. I participate a little less often, but with more depth after a few years. (NQ99:10)

Of perhaps as great importance has been the personal changes in ways that respondents have developed skills over time:

My use of Nursenet and other lists has also changed. I was a 'lurker' for about the first 6 mos. (I got flamed for a post to another list that I didn't have enough 'net sense' not to make). I now dive in—post questions, answers to other's questions, and (yikes) even my opinions. (NQ99:28)

I am no longer an impolite newbie. I don't SHOUT or spam, I don't accidentally send things to the wrong places, I don't write things I wish I hadn't, I keep it all in plain text and I snip the original message when replying (no waste). I like to think of myself as a seasoned net vet, fairly computer literate, well aware of the nicer points of netiquette and conscious of the 11th commandment. (NQ99:26)
I used to mostly lurk on nursnet, occasionally adding a comment or two. Now I am more active because I can relate more and I think it is more useful to me now that it was as a student. (NQ99:17)

In respect of learning and reflective practice, there is some evidence from the respondents of moves in this direction:

I will also ask questions if I need to and ask for help in areas that I am researching for my patient's. (NQ99:27)

5.5.4 Using material obtained online in practice

The final major question related to one of the key issues in the use of reflective practice, and indeed, of the value of any discussion of practice, be it online or offline. That is, whether the information obtained, discussed, or reflected on is used in any way in changing, or raising the possibility of changing, the practice of those involved within the exchanges.

The question asked, similar to that used in the first questionnaire, was:

How have using the Internet and discussion lists such as NURSENET helped you in your work? Can you describe any specific examples?

Almost all of the respondents were able to provide examples, although, due to the wording of the question, it was not always possible to separate out where they were referring specifically to material gained through NURSENET and that gained from other lists and/or the wider Internet. The question was deliberately framed in this way so as not to direct the responses, or provide possible confusion, through introducing the word reflection. I felt that use of the term might lead to respondents not providing examples because they did not see them as reflection, or were unsure of what the term meant. The intention of the question was, as much as possible, to obtain the respondents' unfiltered views, which can then be considered against elements of reflective frameworks.

The following examples are extracted from responses where it is clear that the respondents refer to NURSENET. It shows the range of ways in which nurses have used materials from the list discussions, including within their own research and studies, integration as an element within their teaching, and the general sharing of information with colleagues:

When I am teaching an issues class - either ethical or legal, I take a recent example of an issue raised on the NURSENET and present it to the students for discussion. For Example the ... note ... re wanting to know why a lawyer would tell their client, a nurse, not to discuss, on the Internet, an incident for which they might be sued. I would take that to the class and ask them to rationalize why a lawyer would say that. (NQ99:6)

NURSENET and NRSINGED have provided a great deal of information that I have shared with faculty and students where I work. Recently I got a lot of support for changing a policy that was stressful for students where I work (NQ99:8)

My recent MSc would have been impossible without the support of international colleagues and the answers they readily provided to my questions. ...Nursenet colleagues provided tons of information including references to journal articles and appropriate web-sites. As a result, I discovered colleagues (mostly in the USA) interested in the same topic and the same methodology. Sharing and support is what this is all about! (NQ99:12)

Further examples exist of many of the elements of reflection, and of using the results of that reflection to influence practice:

I feel the ability to communicate with nurses everywhere is very valuable to me. In the past I've posted questions about my work, e.g. do all homecare agencies take all referrals, then figure out how to staff the case *(the answer is no)*. I've read other nurses' descriptions of the satisfactions and frustrations they face and been able to measure them against my own. What a relief it was to know that it's not just myself alone who found her workload overwhelming – that it's not just my "time management skills" but unrealistic expectations of how fast I could accomplish my work that was at fault. I've been inspired and frustrated, encouraged and annoyed, and generally developed an awareness of the forces that impact the nursing profession and the environmental influences that help or hinder our ability to practice well. (NQ99:9)

There was a discussion a while back about draining urine from a foley insertion, should you drain it all or wait 1/2 hour after draining 1000 cc. There were a lot of opinions on the matter and I was always taught in nursing school that you should stop after 1000 and clamp it for 1/2 hour to prevent all sorts of horrible things. After reading opinions from many urology nurses and one comment that if you have to go to the bathroom really bad you don't stop after 1000 cc when you are urinating I had some hard evidence that this was a MYTH and I have done my best to try to convince my fellow nurses of this. (NQ99:17)

It has helped me in providing me information that is current. It is also much faster to obtain the information I need. An example would be the responses I received for a particular workload problem. I had to change part of the workload system and had sent out a request for information on NURSENET asking how others had done this. I received some very helpful responses which validated my decision to change that part of the workload system. (NQ99:18)

I have learned of several new techniques from NURSENET peers. For example : using dermabond on a Q-tip to remove FB's from ears... another would be some subtle changes in my management style after listening to the way other supervisors handled particular staff conflicts. (NQ99:19)

I have used the responses to my questions on NURSENET to pass on to my colleagues at work. These responses have helped us with several issues such as paid time for ACLS, wasting of excess morphine, etc. (NQ99:22)

5.5.5 What does the future hold?

It is clear from the responses already cited that many of the nurses answering the questionnaires see use of lists such as NURSENET as increasingly an integral part of their daily work and lives. Some have stated that they cannot imagine how they ever did without them. A subsidiary item within this questionnaire asked respondents to speculate as to how they saw the Internet, including use of such lists, affecting their future work as a nurse. This question was asked, in part, because of the issue raised in the first questionnaire about online courses. Here, as with the last question, there was a desire not to lead the respondents into just thinking about education, and so possibly about formal education, but to see whether they recognized educational potential, especially for meeting continuing professional development needs, formally or informally.

Keep up to date on current research, current practice, get expert advice, promote morale, keep nurses united. (NQ99:6)

It is part of my day to day practice already. I check medical news headlines, communicate with health professionals around the world, do information searches on disease processes. It would be like taking away a clinical nurse's stethoscope to remove this tool from my arsenal. (NQ99:21)

It is probably how I will find my next job. ... It is how I will obtain my CME/CEU's (continuing education). ... I get answers or at least input to treatment dilemmas from clinical lists or net sources I keep current with the local, national and international nursing scene via the net. (NQ99:26)

This examination of data from the second questionnaire has shown some of the ways in which nurses are using discussion lists such as NURSENET to discuss their practice and to exchange information. An increasing number of nurses see access to such resources as a vital part of their practice and there is evidence that they have been able to use information, and reflect on its value. This evidence of reflection occurring, and of nurses

being able to identify examples even where the specific term is not used, provides valuable evidence on the nature of the discussions that are occurring. Taken together with the data to be presented from the list threads, it supports the presence of reflection and reflective discussions. With that in mind, we now turn to data collected with the specific purpose of examining whether subscribers themselves saw evidence of reflection in the discussions.

5.6 Interviews on reflection

The email interviews began from a common set of questions asked of all the interviewees. They then proceeded, in a semi-structured manner, along slightly different paths with each, according to the answers provided, in particular in respect of their knowledge of the concept of reflective practice, and their thoughts on, and possible examples of, reflection within list discussions.

The following examples illustrate the range of views expressed in the interviews. This is a necessity because of the fact that, while a number of interviewees expressed the view, with varying degrees of enthusiasm and assertion, that there was evidence of reflection, others took the view that this generally did not happen.

The interviews began with a series of three questions. The first asked:

What do you understand (if anything) by the term reflective practice (or the phrase reflecting on practice)? - if you are familiar with the whole concept, what do you understand by reflection-in-action and reflection-on-action?

Three of the interviewees stated that they were not familiar with the terms, for example:

The concept and term reflective practice is one I am unfamiliar with. (IR04)

Two of these attempted to provide an explanation of what they thought it might mean that demonstrated an interpretation with great similarity to that provided by the many definitions, for example:

I would presume it to mean taking a look back at the actions involved in a situation and problem solving a better outcome from the one obtained. (IR04)

I'd assume it refers to thinking about the practice of nursing, why do we do it, how do we do it, what's ethical practice, what's acceptable practice, what's unacceptable practice and on what basis; that sort of thing. (IR08)

Other interviewees provided a range of definitions and descriptions of the terms, some based within the literature, with which they were obviously familiar. One interviewee provided summaries from the literature, including Schön, and stated that:

Reflective practice is based on the notion that skills cannot be acquired in isolation from context ... my "looking inward" or introspective look at my practice of nursing.... analysis of "why I do what I do." (IR01)

Some of the interviewees described how, for them, reflective practice was not an exercise or an end in itself, but was, or should be, integrally involved with influencing practice:

...reflective practice is about the discovery of situated meaning and significance in our everyday interactions (in this case in nursing). This is not an end in itself but more a means to an end where I see that end as more meaningful professional practice - hence the search for significance. (IR05)

...reflective practice means thinking about why something is done a particular way in nursing and questioning whether it should be done that way or is there a better way. (IR09)

Personally, I see THAT as the benchmark for reflective practice: intellectual exchange, with the Internet as the community of learning using digital storytelling (experience exchange) and critical thought through discussion - with others. (IR01)

One interviewee described how, in her location, there were similar requirements to those within the UK statutory requirements:

Reflective practice is now part of every nurse's professional life here ... Each year when we submit our annual registration ... we are required to indicate that we have met the reflective practice requirements of the CNO's quality assurance program. (IR06)

The distinctions between reflection-on-action and reflection-in-action seemed to be well understood or interpreted:

reflection-in-action: I would take this to mean examining my ng regarding my nursing practice; practice while actually performing nursing activities rather than post-performance reflection; examining "what I do WHILE I am doing it" (IR02)

reflection-on-action: To me this means introspective analysis of my nursing practice/actions post-performance and thoroughly reflecting (examining) on my actions; analysis of "what I did AFTER I did it" (IR02)

Most of the published work we read obviously concerns reflection-on-action since it is written after the event (IR05)

The second of the three questions sought to determine whether interviewees had been taught about reflection and reflective practice. This included being taught as part of any course they had undertaken in any kind of formal educational setting, but also whether, as academic or clinical educators, they had themselves been involved in teaching others about reflective practice.

Most of the interviewees said that they had not themselves had any formal teaching on the issues, although those who have, in recent years, been involved in their own professional development activities have experienced the use of reflection as a component part of the courses they have undertaken. For example:

...I have completed assignments that involved personal reflection and analysis while completing my M.S.N. degree. (IR02)

As a Masters student I 'discovered' reflective practice which was then unknown in my professional context (outside the UK). (IR05)

One interviewee indicated that their knowledge of the area was self-taught:

No formal educational exposure - self taught, keeping up with the literature - any knowledge on this subject has been gained ENTIRELY from the Internet. (IR01)

while another also indicated a similar self-motivation:

Certainly reflective practice prompted me to obtain higher education, develop my teaching skills and to increase my clinical competency. I also encouraged other nurses to reflect on their practice and look at how best they could develop as nurses and persons. (IR06)

The possible effect of cultural differences and attitudes towards practice and education is exemplified by one interviewee's experiences with colleagues on the European mainland:

... when I attempted to present these ideas during a conference with clinical colleagues the reactions were quite openly hostile. The declared point of view was that practice without reflection is unthinkable, therefore every qualified nurse already incorporates reflection into everyday practice and they certainly don't need some upstart lecturer to tell them how to think according to the latest imported guru. (IR05)

As a result of the apparent differences in emphasis noted in the literature from different countries, the third question asked:

What similarities and differences do you think there are (if any) between reflective practice and critical thinking?

This again elicited a range of responses, and even those who were not familiar with reflective practice attempted to provide answers. There was a general feeling, expressed by 6 of the 9 interviewees, that the two were similar or related to each other in a number of ways, but there were also interesting distinctions made, in particular as to which was thought to be a component of the other.

The view of the two having similarities, or being components of each other, was expressed in a number of ways:

Critical thinking is intrinsic to practice and reflection. I see 'reflection' as just different terminology and a different way of describing - what is STILL, BASICALLY: the creative process. (IR01)

I believe reflective practice is tied to critical thinking. It is not absolutely necessary to think critically to be able to reflect but it sure helps. (IR09)

I do think there is a difference in reflective practice and critical thinking. There is a difference in focus but the two are dependent. (IR06)

while those who expressed a view as to which was an element of the other showed differing opinions:

I think reflective practice is a component of critical thinking. (IR02)

... reflective practice contains or encompasses critical thinking if I take 'critical thinking' to mean challenging accepted, traditional, received ideas, norms and procedures or political ideologies. The opposite appears (to me at least) to not necessarily be the case. I feel it possible to maintain a critical stance without the search for self-awareness (IR05)

Two of the interviewees thought that reflection was more of an emotional approach with critical thinking being more cerebral:

I don't know what the differences would be. In looking at it in context, I wonder if "reflective" comes more from the heart and "critical thinking" comes more from the head. (IR03)

I would also say that critical thinking is a more cerebral response and reflective practice more emotional. (IR07)

Some of these issues of the similarities and differences between critical thinking and reflective practice were explored further with some of the interviewees, and further exploration brought out further detail of response, including:

... there are elements of each within the other. Critical thinking springs from Socratic questioning which has as its perquisite 'reflective' questioning. So, to think critically, you must reflect. Does it go the other way? Does reflective practice (on or in) have critical thinking as a perquisite? Maybe. Maybe not. (IR01)

My views of the literature and the possible interchangeable use of the terms were framed into a question:

There seems to be some conflation of the two, but also, there seems to be much more literature on reflective practice coming out of UK and Australia (and less out of North America), and much more out of North America on critical thinking and less on reflective practice. I wondered whether people were meaning the same things, or whether there were other explanations. Any thoughts?

The view was validated by several of the interviewees, in particular by two who had come to a similar view from their own research into reflective practice and practical experiences:

I too picked up on this whilst doing my lit. rev. for my paper ... (IR05)

Yes, I agree- Australia does talk about reflective practice & the USA about critical thinking and yes, I think there are points where they mean the same thing. (IR09)

Some interviewees also provided a suggestion of cultural differences to explain the differences in the literature base:

Assuming critical thinking can be (and often is) practiced successfully as an individual pursuit, can reflection in practice and on practice be pursued as successfully with the same degree of isolation? This may be why you see more emphasis on the critical thinking aspect from the highly individualized culture of the U.S. (IR01)

I wonder if here as well we are talking about encouraging 'home-grown' ideas? ... Another example would be the eagerness of my French speaking colleagues to wholeheartedly and sometimes uncritically embrace nursing theory out of French-speaking Canada but to refuse anything English speaking from the USA ... (IR05)

Interviewees from the USA generally confirmed a lack of familiarity with the reflective literature:

I can tell you that I have read extensively on critical thinking and read very little on reflective practice. (IR02)

From here, having set the context and ascertained a feeling of the degree of knowledge around the issues and nature of reflection and reflective practice, the interviews moved on to the core issue that I wished to explore. This was whether, as current and/or past subscribers to NURSENET, they believed there was any evidence of reflection occurring within the discussions, whatever their view of reflection might be.

Seven of the 9 interviewees (77.8 %) asserted, with varying degrees of enthusiasm, that some form and degree of reflection was occurring within the NURSENET discussions.

The responses ranged from those who enthusiastically asserted its presence:

I have to answer your questions with an enthusiastic YES!! It's one of the main attractions of such 'net communication. (IR08)

Oh yes, I certainly believe there has been ample evidence of reflection going on in many NurseNet discussions. (IR02)

through to those who took a more equivocal view, suggesting that many of the responses were not reflective, but that some did show some evidence:

Not so much on NURSENET. I find reflection on practice more common on other lists – (IR01)

I believe that some of the NURSENET discussions have been reflective. We describe incidences that have occurred and ask for insights into a better way of doing or responding in the situation. (IR04)

But I do think some reflection is going on ... (IR09)

The other two respondents did not think that the seeking and provision of information, and the associated discussions, constituted reflection as they defined it.

Several of the interviewees provided their own examples of what they saw as reflective responses or discussion within the list. As will be discussed in the analysis of the main corpus of discussion threads, some list members save messages in which they have a particular interest. Two of the interviewees explicitly stated that they do this:

I have a 'pearls' file that I keep in my mail program for useful practice hints ... (IR01)

I had saved some threads from Nursenet where I'd posed a question that started a lively discussion about quality of care or economic factors ... (IR08)

The reasons the interviewees provided for believing that reflection is evidenced in the discussions are worth dwelling on, and examples are presented here, as they support some of the interpretations made in my own analysis of the threads in Chapter 6. One interviewee provided a lengthy account of her own view that accords well with the model developed and the elements within it:

In fact, I believe the majority of serious posts, other than the "me too" or "have you heard _____," involve some form of reflective thinking about one's practice. ...I have participated in several posts about such issues. Generally a list member will introduce a topic in the form of a personal account of something that happened while on the job or something they "heard about" while working. This personal account or "story" if you will often evolves into an entire thread where nurses reflect on their own experiences with said topic, how they dealt with the emerging issues, often elaborating on their experiences WHILE the event unfolded (reflection in action) and elaborating on their experiences/feelings AFTER the event unfolded (reflection after action). ... I believe listserves serve their members well in this regard. (IR02)

and others similarly describe aspects that accord with the elements of the model:

We describe incidences that have occurred and ask for insights into a better way of doing or responding in the situation. Some of the discussions, including the use of saline boluses during suctioning, have been answered with both literature reviews and personal experiences. (IR04)

The answers provided here also illustrated a number of other elements that emerged within the model, including use of archived discussions for educational purposes:

I like using Nursenet for my classes in professional growth & issues because ethical & legal questions that are of current concern to someone are always available- real life examples that make my students stop and consider what they would do in the same situation. (IR09)

the use of evidence from practice and other sources to support contributions to the discussions:

I asked for assistance from the lists ... and received some excellent literature sites and practical advice on the physical setup to use to accomplish the proning with minimal staff and patient injury. The responses also included stories of proning that sounded worse than mine. It was good to hear from other nurses the strategies that they evolved to accomplish this feat. (IR04)

their own reflection on issues that arise, even resulting in changes in practice:

Armed with this information I was able to implement it and we had much easier and successful pronations since then. ...
One of the other topics that we have returned to often is the inclusion of family members during a code situation. I am still torn over the issue. The reflections of other nurses who have been in a code situation with family present is very illuminating. the differing approaches and personalities of the nurses and families involved gives a very complex picture of the right thing to do. Using these reflections I have been able to let my need for control over a code situation relax enough to allow family to remain if that is what they wish. (IR04)

and elements of online reflection around action:

One that comes to mind is [...]’s unfolding saga surrounding the deaths of her family members. She reflected during the events, before the events (as in the case of her dying father and aunt), and following the events (she’s now writing a book about death and the needs of the dying person). Other nurses have told of work situations involving inadequate care delivery, staff shortages, stressed relationships with their managers and/or colleagues..... many of these discussions occur while such events are happening...(IR02)

Several other issues emerged from the interviews, and will be addressed here only briefly, as they were discussed with only a minority of the interviewees. Some of them point to issues that might be suitable for further research. One of these issues was that of the potential obligation nurses might have, as autonomous professionals, working within statutory frameworks within their own geographic areas, if what might be seen as poor practice was evidenced in the discussions. They were asked:

Do you think that we, as readers, have any professional or other responsibility when this happens?

Of the few who responded, it was seen as being an issue for individuals, rather than some form of community standard, sanction or statutory control:

Not particularly. I think it depends on WHO is presenting the 'less than good practice' and HOW it is presented. I think the correction would come most readily and most often from a spirit of camaraderie and concern, rather than from some sense of moral imperative or police mentality. (IR01)

As a professional, I believe each of us has a responsibility to improve our practice in any way possible. If reading a listserve thread forces us to focus on some aspect of our own practice that is "less than optimum," then it's our responsibility AS A PROFESSIONAL and AS A PERSON to recognize our areas of deficiency, reflect on methods of improvement, research the topic, and adjust our practice accordingly. (IR02)

As will be indicated in the analysis of the discussion threads, sometimes a great deal of information about the patient is divulged during the descriptive narrative. The issue has been only briefly addressed in the paper literature on reflection, for example by Rich and Parker (1995), who explore a range of ethical and moral issues around the use of patient information. The question of whether there were professional issues around confidentiality was raised with a few interviewees, and while individual views are expressed, this may again be an issue for further exploration with more list members:

In the entire time I have been on NURSENET I cannot recall feeling that anyone was endangering the privacy of a patient under discussion. (IR01)

As long as patient names or other identifying information is not released, I do not view listserve discussions as a breach in patient confidentiality. (IR02)

Issues of confidentiality and privacy on electronic discussion forums are addressed by, for example, McCartney (2000). She concludes that the onus must lie with the individual subscriber to maintain professional standards of confidentiality and privacy. Any code of professional ethics for electronic communications, she maintains, should draw on, and be consistent with, other existing codes and standards.

One of the major issues that arises from the analysis of the discussion threads was that of closure or resolution of the discussions, and any evidence of changes in practice or learning resulting. In closing this examination of the interviews, it is appropriate to present the views of the small number of interviewees with whom this was raised as to whether closure and changed practice is evidenced:

Sometimes ... I think it depends on what was being discussed, e.g., a 'hands-on' practice tip, a diagnostic criteria, a suggestion of 'proper attitude' when faced with a situation, a suggestion how to better exemplify caring; and HOW it was discussed: reflective, consensual, aggressive, disputed, etc. (IR01)

Yes, I feel closure occurs sometimes. Following reflection surrounding a professional issue, practice changes often result. I don't quite comprehend exactly why a nurse would reflect if not for the ultimate purpose of changing (improving) his/her practice. Yes, sometimes reflection simply reaffirms the fact that what you did was correct within your line of thinking and acting, but I believe this reaffirmation improves one's practice of nursing.

Either way, via listserves or in person-to-person discussions, I believe such events certainly do alter practice. ... Another way a listserve thread might influence one's practice is by simply making the reader THINK about a topic to further clarify his/her position on said topic. (IR02)

Bringing such questions to Nursenet ... and discussing them with other nurses helped me to put my individual situation into a much broader perspective and find realistic answers to my questions. ... I gained confidence in my belief in my own abilities, learned that problems I faced were partly universal or dependent on broad economic forces, partly local depending on pressures faced by my own employer, and partly personal involving one-on-one relationships between myself, my patients, and my managers ... (IR08)

5.7 Chapter 5 summary

This chapter has presented the first parts of the data collected for this study. Before moving on to the next chapter, and the main parts of the data and their analysis, it is useful to summarise what the data collected and discussed so far shows, as it already provides some pointers towards addressing some of the questions that form the basis for the study.

The data show that, over the first few years that the list has existed, there has been a concentration of membership among US nurses and of discussion of issues to their

practice. This is despite the list having a stated aim of being a global forum, and at least a portion of subscribers citing international interactions as one of their reasons for being on the list.

There is evidence that some nurses, at least, are using the list for reflection on and around their practice, and for gathering information relating to their practice and possible ways of changing it. This information is often shared with other colleagues. There is a view among at least some list members that reflective discussions are possible, and do occur.

From this initial base of evidence, we move into the major part of the data collection and analysis, and in the next chapter examine the list discussions themselves.

Chapter 6

Threads of reflection

Academic research on “the Net .. will present conceptual, theoretical and methodological challenges - the resolution of which represents the seeds of academic advancement
Waskul and Douglass (1996)

There is only one thing in the world worse than being talked about, and that is not being talked about.
Wilde (n.d.)

6.1 Introduction

In this chapter I discuss the analysis of the main data elements used within this study, i.e., the corpus of discussion threads selected from the NURSENET list. The first part of the chapter discusses the pilot analysis, undertaken using a small corpus of threads selected from the list, and the initial model developed from two existing nursing frameworks for reflection, those of Kim (1999) and Johns (1995b).

The second, and main, part of the chapter, discusses the development of my own model from the results of the pilot analysis, together with the testing of that model against the main corpus of discussion threads selected. As discussed briefly in Chapter 4, the analysis of both the pilot and main corpuses is congruent with other methods of analysing similar discourse corpuses, such as those of Fairclough (1992) and Parker (1992).

6.2 Starting with Kim and Johns

6.2.1 Models that might fit

The discussion of reflection, and in particular reflection within nursing, in Chapter 3 provided a background to the models discussed and developed here. The discussion of the literature on reflection illustrated the relative paucity, despite the amount of literature,

of models and frameworks for reflection, in particular ones that had been subject to any analysis within nursing.

The first stage in the analysis of the corpus of discussion threads was to determine whether an existing model for reflection from the offline world was adequate or sufficient in describing reflection in the online world, and, if not, the second stage was to develop and test such a model. The frameworks described by Kim (1999) and Johns (1995b) are presented to demonstrate the development of the version 1 model used in the pilot analysis of discussion threads.

After prolonged immersion in the nursing literature on reflection, it seemed to me that no single model or framework of reflection adequately described or accounted for the elements of reflection within online discussion that the data discussed in Chapter 5 seemed to be pointing towards. Indeed, with the exception of the work of Andrusyszyn (1996) and McCartney (1998a), there is little nursing literature dealing with reflection within online discussion environments. While Andrusyszyn (1996) examined reflection within formal educational courses, neither she nor McCartney (1998a) seem to make reference to any specific models or frameworks for reflection.

One could criticise my approach in that, by using neither Kim's nor Johns' models in their pure form as a basis for analysing the pilot threads, the model developed from them was already being set up to fail. This was, however, neither the case nor the intention. It was apparent from examining them that neither of the two in isolation would provide a sufficient model within which to examine the discussion threads, but it seemed that, through a combination of elements of both, a model might be developed that would work. If this had been the case, then I would have been content to use that model within the

main analysis. As will be seen, this was not the situation, and my own model was developed, albeit one that still retains many elements from Kim’s framework.

6.2.2 Kim’s phases of critical reflective inquiry

Kim’s framework, which she presents as a “method of inquiry” (Kim, 1999) was selected in preference to some of the other nursing models, such as Atkins and Murphy (1994). This was for several reasons, the principal being that the theoretical framework within which Kim situates the method is congruent with the theoretical and philosophical framework within which this study is conducted, including Kemmis’ (1985) approach to reflection. Kim states (1999, p.1205) that her method of inquiry “is founded upon the ideas in action science and reflective practice, and critical philosophy.”

Figure 6.1 Phases of critical reflective inquiry (after Kim, 1999, fig. 1, p.1208).

	DESCRIPTIVE PHASE		REFLECTIVE PHASE		CRITICAL/ EMANCIPATORY PHASE
PROCESSES	Description of practice events (actions, thoughts and feelings) Examination of description for genuineness and comprehensiveness	→	Reflective analysis against espoused theories (scientific, ethical and aesthetic) Reflective analysis of situation Reflective analysis of intentions	→	Critique of practice regarding conflicts, distortions and inconsistencies Engagement in emancipatory and change processes
PRODUCTS	Descriptive narratives	→	Knowledge about practice processes and applications	→	Learning and change in practice Self-critique and emancipation

The three phases described Kim’s method of inquiry are presented in Figure 6.1. The descriptive phase, the reflective phase and the critical/emancipatory phase represent the processes within the method, while each of the three phases is associated with products. The descriptive phase, and its associated product of descriptive narratives, occurs when

practitioners themselves, i.e., the nurses involved as list members in the discussions in the case of this study, provide descriptions of specific instances of practice. As Kim describes the application of the method, it invites the nurse to look back into their past actions and activities (in Schön's terms, reflect-on-action). Kim views the narratives as a descriptive tool only, and sees a need to recollect genuineness, comprehensiveness and completeness of the descriptive narratives with respect to the actual experiences. These descriptions are not only of psychomotor actions, but, as Kim says should, also include thoughts and feelings about the actions. Interpretations of these descriptions, i.e., any reflection or critical analysis, are, according to Kim, premature at this phase. As will be seen in the discussion of the pilot analysis and of the analysis of the main corpus, this latter aspect is one the main areas in which Kim's model seems incongruent with listerv-based reflective discussions.

In Kim's reflective phase, the descriptive narratives of practice developed out of the first phase are examined in a reflective mode against practitioners' personal beliefs, assumptions and knowledge. They are tested against existing scientific knowledge and/or claims, and may also be analysed in terms of ethical or value standards, and aesthetic genuineness and creativity, from both general (i.e., community standard) and personal perspectives. These areas are similar to three of Carper's (1978) "ways of knowing" (empirics, aesthetics, personal, ethic), on which Johns' (1995b) work is based, and are akin to Johns' areas of questions, i.e., aesthetics, personal, ethics, empirics and reflexivity. It was in part because of these similarities that Johns' work was also selected for use within this study.

In this reflective phase, the nurse should gain insights and self-understanding about their modes of practice, and through this can uncover the ways in which they handle complex

clinical situations and, perhaps more importantly, aspects of their practice that might have become entrenched in routine (Kim, 1999). This phase should also provide for identifying how specific aspects of each clinical situation described affect the nurse's actual practice, i.e., the unique context of specific actions and the aspects they share in common with other similar clinical situations.

In the final phase, the critical/emancipatory phase, the nurse moves on from reflection, and is oriented towards changing practice. This might involve correcting and changing less good or ineffective practice, or to the recognition of new innovations emerging from practice and their integration within future changed practice. It involves, according to Kim, the critique of distortions, inconsistencies and incongruence between values/beliefs and practice; intentions and actions; and clients' needs and nurses' actions, which have been identified in the reflective phase. In these respects, Kim's method seems one of the few within nursing to have strong congruence with Kemmis' (1985) views on reflection (although she does not make reference to his work)

Kim's method, as presented, implies, and is reinforced by, the unidirectional arrows within the diagram, a linear progression from one phase to the next. There is no indication in her description of revisiting earlier phases in any kind of cyclical nature.

6.2.3 Johns' questions

The description of Johns' framework for reflection on action used here is presented most clearly not in his own work (e.g., Johns, 1995a, 1996, 1999), which focuses on the application of reflection within clinical supervision, but as summarised in Greenwood (1998). Figure 6.2 derives from Greenwood (1998), after ensuring congruence with Johns' (1995b) own description.

Within this framework, which Johns (1995b) acknowledges is closely influenced by Carper's (1978) fundamental ways of knowing in nursing, he describes his provision of

...a model of structured reflection...constructed ...through a constant process of analysing supervision dialogue within guided reflection relationships.

Figure 6.2 Johns' (1995b) framework for reflection on action (after Greenwood, 1998, figure 3, p.1051).

A] Aesthetics

1. What was I trying to achieve?
2. Why did I respond as I did?
3. What were the consequences of that for the patient? Others? Myself?
4. How was this person (people) feeling?
5. How did I know this?

B] Personal

1. How did I feel about this situation?
2. What internal factors were influencing me?

C] Ethics

1. How did my actions match my beliefs?
2. What factors made me act in an incongruent way?

D] Empirics

1. What knowledge did or should have informed me?

E] Reflexivity

1. How does this connect with previous experiences?
2. Could I handle this better in similar situations?
3. What would be the consequences of alternative actions for the patient?
Others? Myself?
4. How do I now feel about this experience?
5. Can I support myself and others better as a consequence?
6. Has this changed my ways of knowing?

He goes on to say that this model is offered as a

...heuristic tool. By 'heuristic' I mean that the intention of the model is to provide a framework for this activity, whilst simultaneously enabling the practitioner to

transcend the model to reflective in response to the unfolding situations that present within everyday practice.

Thus, Johns also takes an action-oriented approach to reflection, perhaps not as explicitly grounded in critical theory as Kemmis or Kim, but nevertheless still with some congruence to the framework for this study. While this study seems to be the first to apply Johns' work within a context of online discussion, Perry (2000) provides a useful complementary exploration, within a hermeneutic perspective, of using his questions to explore a single practice incident.

As Johns (1995b) says of the model, "contradictions between desirable work and actual practice are made visible and become a focus for action to resolve them." However, much of Johns' subsequent application of his model (e.g., Johns, 1996, 1999) has been within what he terms "guided reflection" and processes of clinical supervision, within one-to-one relationships between the nurse and their supervisor, and almost, it seems, within a therapeutic application of supervision. It is perhaps for these reasons that, as will be seen, Johns' questions have less specific utility within a framework for online reflection that involves group processes.

6.2.4 Combining Kim and Johns – Murray version 1 model

The version 1 model developed for the pilot brought together Kim's framework and Johns' questions. It was apparent in devising the model that none of Johns' questions fall into Kim's descriptive phase; the description of the event(s) seems to be assumed by Johns. Indeed, examination of Johns' writings seem to take the description as the given starting point, and his model does not seem to address the various processes leading up to this point.

Each of Johns' questions was mapped against the appropriate phase of Kim's framework. In general, each question was mapped against only one part of Kim's framework, although one could argue that some of them cross over areas. This mapping is shown in Figure 6.3, with Kim's elements shown in plain text and Johns' questions in italics, for clarity. In devising the version 1 model, it seems that most of Johns' questions relate to Kim's Reflective Phase, although the majority of the questions in Johns' Reflexivity section seem to lie within Kim's Critical/Emancipatory Phase.

Figure 6.3 Murray version 1 model.

	Descriptive phase	Reflective phase	Critical/emancipatory phase
PROCESSES	<p>Description of practice events (actions, thoughts and feelings)</p> <p>Examination of description for genuineness and comprehensiveness</p>	<p>Reflective analysis against espoused theories (scientific, ethical and aesthetic)</p> <p><i>C1 How did my actions match my beliefs?</i></p> <p><i>D1 What knowledge did or should have informed me?</i></p> <p>Reflective analysis of situation</p> <p><i>A3 What were the consequences of that for the patient? Others? Myself?</i></p> <p><i>A4 How was this person (people) feeling?</i></p> <p><i>A5 How did I know this?</i></p> <p><i>B1 How did I feel about this situation?</i></p> <p><i>E1 How does this connect with previous experiences?</i></p> <p>Reflective analysis of intentions</p> <p><i>A1 What was I trying to achieve?</i></p> <p><i>A2 Why did I respond as I did?</i></p>	<p>Critique of practice regarding conflicts, distortions and inconsistencies</p> <p><i>C2 What factors made me act in an incongruent way?</i></p> <p><i>E2 Could I handle this better in similar situations?</i></p> <p>Engagement in emancipatory and change processes</p> <p><i>E3 What would be the consequences of alternative actions for the patient? Others? Myself?</i></p> <p><i>E4 How do I now feel about this experience?</i></p> <p><i>E5 Can I support myself and others better as a consequence?</i></p> <p><i>E6 Has this changed my ways of knowing?</i></p>

Each of the 5 threads chosen for the pilot analysis (Table 6.1) was then read through and examined against this version 1 model, for evidence that the elements and questions were being addressed, either explicitly or implicitly. The analysis of each phase, with

appropriate examples, is presented in section 6.3. These 5 threads, comprising 94kb of text and 82 messages, were derived from an initial corpus of 21.42 MB of text (i.e., 13,499 messages and 563,357 lines of text). The 5 threads selected are indicated in Table 6.1, together with the coding used within the discussion in section 6.3.

Table 6.1 NURSENET discussion threads used for pilot analysis.

THREAD ⁴	TOTAL NO. OF MESSAGES	NO. FROM ORIGINAL POSTER (inc. first descriptive narrative)
P01 - A migraine scenario	9	1
P02 - Infection control practice	10	1
P03 - Restless legs syndrome	6	3
P04 - Prone positioning	33	12
P05 - Dop/dob	24	2

(See footnote below for explanation of coding of data examples in the following sections).

6.3 Pilot analysis of threads, using Murray version 1 model

6.3.1 Introducing the phases

The pilot analysis of the discussion threads is presented within the following sections (6.3.2 to 6.3.8) and concludes with a discussion bringing together issues raised from the analysis. Each of the three phases (as in figure 6.3) and the parts within that phase is discussed in turn. For each part of a phase, examples from the threads are used to illustrate the points under discussion, and interwoven with discussion and analysis.

6.3.2 Descriptive phase - description of practice events

In each thread, the nurse starting the discussion provided a description of the practice

⁴ The direct quotations from the threads are coded for clarity, and to allow for following the flow of discussion when several examples are presented. Each thread is coded (P01 to P05, as per table 6.1). The nurse providing the initial descriptive narrative is coded N followed by the number from the thread code. The nurse providing the descriptive narrative for thread P01 is coded N01. The other contributors to the threads are coded according to the thread number and the order in which they contribute to the discussion following the descriptive narrative. Thus, code R01-4, for example, is the fourth respondent to the descriptive narrative provided by nurse N01 in thread P01. Similar coding is applied for the main corpus discussed in sections 6.5 to 6.11.

event. In P01, the start of the thread was framed as a request for research evidence regarding an aspect of practice, specifically:

I am trying to find some research regarding dopamine and dobutamine and nursing practice. Are units adjusting the dose daily with daily pt weights or are units using the pts dry weight and not adjusting? [N01]

In P02, the nurse describes the current practice of some of her co-workers in her clinical area:

I am working in a PCU, I saw some of my co-workers wearing a same gloves to empty patients' foley bags and urinals from one patient to the others. [N02]

In P03, the nurse starts by framing a question:

I have a question about prone positioning patients with ARDS. First does it take a Doctor's order to prone a patient as we position patients anyway? [N03]

In P04, a clinical situation is described, as often happens in discussions on the list, the “patient” is the nurse herself:

I have Restless Leg Syndrome! [N04]

In P05, a scenario describes a particular patient with whom the nurse is currently engaged:

Our hospital has for the past three months, had a young woman coming in on an outpatient basis (2-3 times per day) for IV Morphine for c/o cluster migraine. [N05]

While the form of these descriptions and practice events varied, in each case there was clear evidence from the message that the request for information, discussion, advice etc., the descriptive narrative in Kim's terms, related to a practice issue or event about which the nurse had some concerns. The narratives were not simple academic exercises in seeking information on a subject (as N01 and N03 might seem to indicate), and in all cases there was additional material explicitly stated in the narrative that indicated the relation of the message to the practice issue or event.

Thus, in P01, in addition to requesting the information:

I am trying to find some research regarding dopamine and dobutamine and nursing practice. ... If anyone has any articles or references please email me I would greatly appreciate it. [N01]

the reasons or context are also provided:

My unit was adjusting daily, a stepdown tele unit, but come to find out other units were not. [N01]

In P02, the nurse, in addition to describing the practice situation she encountered, stated that she was posting her message as a result of concerns about the practice:

I think this is a poor infection control practice. [N02]

In P03, the context of the nurse's own practice situation is again provided through the description of a particular patient and set of events and circumstances, before ending in a request for information:

Is there any good resources on the web about proning, I can't find any good ones. [N03]

In P05, the practice situation is again described in detail, as are the concerns of the nurse and her colleagues about the situation:

The nurses are very frustrated. First of all we think it's outrageous for this to have been happening for so long ... Her GP doesn't know what to do with her since all the specialists don't know either. The GP gets quite defensive when asked about his plan for this woman. [N05]

before ending in a request for information and advice:

Any suggests or comments about this scenario? We certainly aren't not doing this woman any favours. Any advice would be appreciated. [N05]

In all of these cases, there is clear evidence that the nurses are providing descriptions of the practice events in terms of their actions, their thoughts, or their feelings, and more commonly by a combination of some or all of these.

6.3.3 Descriptive phase - genuineness and comprehensiveness

The description of the practice event is generated, in the first instance, solely by the nurse posting the message containing that description, but in the list discussions examination of the description for genuineness and/or comprehensiveness of the account becomes a shared event among the list subscribers. Evidence to support or deny the genuineness and/or comprehensiveness of the description comes from other participants, and will be evident from the form of their responses to the initial message.

In none of the five threads examined in the pilot was there any suggestion of the descriptive narrative not being taken as genuine. Several nurses, in responding to the message with similar examples from their own experience with which to validate the experience of the message contributor, demonstrated that, at least in the view of the participants in the discussion, the descriptive narrative was genuine and sufficiently comprehensive.

Examples of the ways in which certainly the genuineness, and implicitly the comprehensiveness, of the descriptive narrative were accepted and validated by other respondents occur in all of the threads. Respondent R01-4 provides support for genuineness by relating to her own similar experience:

We went through this issue at our hospital a while ago ... [R01-4]

Respondent R02-3 takes a different approach that nevertheless supports the genuineness of the original, very short, description:

How do these co-workers get from room to room without touching door handles, beds, overbed tables (trying to get to the foley bag) They don't feel this is spreading lots of little BUGS. Did they forget that you are supposed to take off the gloves and wash your hands between patients? [R02-3]

Respondent R05-10 provides an example from personal experience, as frequently happens in many discussion threads:

I admit that I have migraine headaches. Not just little bitty ones, but great big head throbbing with vomiting headaches. I feared that my local ER had placed me on their "frequent flyer list." (until we found the source of the headaches) [R05-10]

In most of the threads, the initial descriptive narrative seems to have been sufficiently comprehensive to initiate discussion. Occasionally, some clarification or additional information was explicitly sought by respondents, or provided by the provider of the original message.

For example, in P03, after the original descriptive narrative from N03, and two messages, each from different respondents, N03 again entered the discussion, responding to a question and request for clarification by R03-2:

I wasn't sure what you meant by your reference to 45% FiO2 - did you mean that, when the patient was prone, you were able to drop the FiO2 to that level and still oxygenate adequately? [R03-2]

By providing further detail, the comprehensiveness of the account was increased:

Thank you for responding [name], yes we were able to decrease the FIO2 on the vent to 45% in the prone position while keeping the O2 sats 92-94%. Unfortunately the patient didn't have a Swan to monitor. [N03]

6.3.4 Reflective phase – analysis against espoused theories

The message threads provided a wealth of examples of contributors to the discussions, both the nurses providing the original descriptive narratives, and those contributing to subsequent discussion, examining the issues with reference to espoused theories, particularly in terms of ethical and scientific aspects of theory and knowledge. While Johns' question C1 (*how did my actions match my beliefs*) was addressed explicitly in a number of instances, his question D1 (*what knowledge did or should have informed me*) is addressed on many more occasions.

The matching of actions against beliefs is evident in a number of instances. Nurse N02 shows how her actions, discussing her concerns with her co-workers in the clinical area and then requesting assistance from the list, matched her beliefs that the practice they were engaging in did not accord with best clinical practice:

I think this is a poor infection control practice. I discussed my concern with some of these co-workers, and their answers was, "We are not touching the patients!" Please give me some input about this issue. [N02]

The issue of actions matching beliefs raises other issues, especially where, when working in a multidisciplinary healthcare setting, the actions and beliefs of the nurse may be in conflict with the instructions or actions of other colleagues, especially medical staff. As will be seen in the main corpus of threads, one of the more common areas of discussion on the list revolves around tensions and conflicts in multi-disciplinary working. An example does occur in the pilot, where N03 states that, after several doctors had disagreed with the action that the nurse believed was appropriate:

Finally got one Doc to say OK but to keep him prone for 8 to 12 hrs. I told my nurses to prone the patient but only leave him prone and supine for 4 hrs at a time and to pad well under the bony areas with pillows in prone. [N03]

The discussion threads also go beyond the individual reflection or one-to-one discussions on which the model is founded, and demonstrate that, in the group discussions, other participants are also reflecting on how their actions match their beliefs through the evidence they provide from other practice situations.

Respondent R02-4, for example, in discussions in the infection control thread (P02), introduces evidence of her actions matching her beliefs:

I've even had a discussion with a health care worker (designation interchangeable) that "washing off and resuming" with the same pair of gloves is really not a good practice (yes kids, this is a true tale) [R02-4]

In the same thread, R02-5 provides similar input:

The dental hygiene program instructs student hygienists to wash their gloves after each patient!!!! Arrrgh! And I have noticed that sometimes I have to remind the dental assistant to please, do not go from the doorknob of the exam room to the overhead mirror and then... put your fingers in my mouth. Ugh! [R02-5]

Similarly, in thread P01, discussing use of patient weights in titrating drug therapies, several respondents demonstrate how their actions match their beliefs, sometimes based on their own previous examination of, or reflection, on the issue:

Well, [name], there is a thing called community standard that can be used in the absence of any definitive studies. We choose a weight and stick with it. [R01-1]

We went through this issue at our hospital a while ago and came to no real firm conclusions. We found that dry weight was a dialysis term not necessarily one that is used for admission weight or pre op weight, etc. I believe that most areas are now sticking to one weight for use in calculations unless there is a fairly large gain or loss. [R01-4]

The use of existing knowledge, in various forms, some supported by evidence from scientific theory, occurs very frequently within the discussion threads; this relates to Johns' question D1 (*what knowledge did or should have informed me?*) Participants in the discussion will often provide supporting evidence from their own experiences and practice, but more interestingly, and probably more importantly given the movement within nursing towards evidence-based practice, reference is made to supporting scientific literature.

Respondent R01-2, in the final message of the thread on drug therapy titration, makes reference to the literature, stating:

Well I found the one reference I have on this. It is Faulkner, Nancy. Ask the Experts. ____Critical Care Nurse____-1994; 14.4: 102 - 103.

As I re-read what she says it is not really very helpful regarding whether to adjust with weight changes. She does say the following:

"The drugs under consideration – dobutamine, dopamine, isoproterenol, phenylephrine, epinephrine and norepinephrine – are all short acting medications that are titrated to achieve a desired pharmacologic response. Changes in weight due to fluid overload, dehydration, or organ system (cardiac, renal, pulmonary, hepatic) function may result in changes in volume of distribution of drugs accompanied by changes in clinical response. The infusion rate is adjusted according to standard guidelines or nomograms, until the appropriate response is reestablished."

This is as close to adjusting the dose according to weight changes as she comes. She is definite in her view of dry weight. She says that this is a parameter used in hemodialysis and is of no practical value in drug dosing. [R01-2]

In the discussion of prone positioning, respondent R03-1 makes reference to the work of experts in the field:

I recently heard Kathleen Vollmer speak on this. It's her baby. She invented the Vollmer prone positioner. She claimed that the current practice suggests 6 hours of prone positioning at a time. [R03-1]

Finally, in the discussion of Restless Legs Syndrome, reference is also made to the literature. However, in this case, and as is being increasingly seen, reference is made to materials available online:

Here's an interesting research article from the American Association of Neurology on a new drug treatment for RLS. <http://www.aan.com/about.html> It's in the December 21 category titled "Improving Sleep for Patients with Restless Leg Syndrome". [R04-10]

Here are some RLS URLs—I combed through quite a few, and deleted all of those who were trying to sell their particular treatment for the condition.

<http://www.rls.org/> Restless Legs Syndrome

http://www.wemove.org/rls_pat.html RLS—This site discusses RLS as a neurological phenomenon, and is the one I referred to earlier regarding sleep biorhythms [...] [R04-3]

6.3.5 Reflective phase – analysis of situation

Five of Johns' questions were grouped under this part of Kim's framework, all dealing with the more affective aspects of the practice event, i.e., with the nurse's perceptions of their own and their patient's feelings about the event described. There is some evidence from the discussion threads that many of these questions are addressed explicitly, as in the following examples grouped according to Johns' questions.

A3 What were the consequences of that for the patient? Others? Myself?

Reflection and discussion on the consequences for the patient are most clearly seen in the thread on prone positioning, where nurse N03 first describes the scenario, and then provides clarification of the effects of their actions:

Thank you for responding [name], yes we were able to decrease the FIO2 on the vent to 45% in the prone position while keeping the O2 sats 92-94%. [N03]

Reflection on the consequences of the practice event for other nursing staff, and, implicitly, for the nurse providing the descriptive narrative, is evidenced by:

The nurses are very frustrated. First of all we think it's outrageous for this to have been happening for so long. Secondly, we wonder if she could be putting in drops to dilate her pupils. Her GP doesn't know what to do with her since all the specialists don't know either. The GP gets quite defensive when asked about his plan for this woman. [N05]

which describes the frustration experienced by the nursing staff, and the defence mechanisms exhibited by the medical staff.

A4 How was this person (people) feeling? B1 How did I feel about this situation?

Discussion of feelings seems to be evidenced very strongly in a number of the threads (an issue discussed in Chapter 2 in relation to evidence from early CMC studies). These two questions will be taken together, as often it is the feelings of the nursing staff, rather than the patients, that are addressed. The threads indicate that the nurses describing the practice events are exhibiting feelings of dissatisfaction or frustration with the situation they encountered – in fact, operating within the critical/emancipatory phase of the framework. Again, the migraine scenario can be used as an example:

The nurses are very frustrated. ... Any suggests or comments about this scenario? We certainly aren't not doing this woman any favours [N05]

Of the threads selected for analysis in the pilot, the strongest discussion of how the patient felt emerges in the restless legs syndrome thread, where the patients in the discussion are often the nurses themselves, suffering from the syndrome and describing their experiences and feelings. For example:

.....give me a day or two.....tired tonight. This is an awful syndrome as it robs you of precious sleep! [R04-1]

You have no idea how many nights I have suffered.....got out of bed ...and made gourmet baked treats at 2am [R04-1]

A5 How did I know this?

Given the infrequency with which the feelings of patients are described in the threads, it was difficult to find any evidence addressing this question, except where, as just discussed, the nurses contributing described their own feelings.

E1 How does this connect with previous experiences?

The connection to previous experiences is, in contrast with the previous question, one of the most pervasive themes of the threads. Time and again, examples are provided of contributors to the discussions drawing on their own previous experiences of similar events as a way of attempting to make sense of the situation being discussed in the thread. In the discussion of the migraine scenario, we see:

We have one also, a patient I mean, with migraines who abuses IM 's [R05-1]

We had a similar case last year. A young woman, 20, with a pitiful story and history of IDDM for 10 years was admitted with several blood born infections. [R05-15]

In the discussion of infection control examples from experience of similar previous experiences are used:

Doctors...oh, yes...when I was in the hospital for posterior tibialis surgery, the intern and the resident came into the room and were going to unwrap my bulky dressing without washing their hands...and had the gall to get ticked off when I suggested they might want to do it. Well, ...actually, I didn't suggest....<g> [R02-5]

On the Medical unit that I work on, we have been having a big problem lately with the nursing assistants on the night shift not changing gloves between patients, let alone never washing their hands. No matter how much they have been told how they are not only putting the patients at risk but also themselves, it just doesn't seem to sink in. [R02-8]

6.3.6 Reflective phase – analysis of intentions

Evidence of reflection on intentions is more difficult to find in some of the threads, due to the nature of the original descriptive narratives. However, it does seem that, in many, if not all of the situations described, there is an implicit, if not explicitly stated, intention of attempting to change practice.

Again using Johns' questions:

A1 What was I trying to achieve?

In the migraine scenario (P05), after a lengthy description of the situation, and reference to the frustration of the nurses involved, nurse N05 asks for advice and comment, with a decided implication of wishing to change the situation in some way:

Any suggests or comments about this scenario? We certainly aren't doing this woman any favours. Any advice would be appreciated. [N05]

Similarly, the criticism of practice voiced by N02 in the infection control thread (P02), coupled with the appeal for input imply that the nurse is seeking to achieve a change in practice:

I think this is a poor infection control practice. I discussed my concern with some of these co-workers, ...Please give me some input about this issue. [N02]

A2 Why did I respond as I did? B2 What internal factors were influencing me?

The two examples cited above also provide evidence in relation to these two questions. N02 is providing a specific statement as to why she has responded in the way she has (I think this is a poor infection control practice). N05's reasons again arise out of the frustration of herself and her colleagues about the situation. In both examples, internal factors seem to relate to a perception that the practice being displayed was not all that it could be, and that there was potential for improvement; it related to the professional standards held by the nurse. This again demonstrates that, in having this awareness that things were not of as high a standard as they could be, the nurses involved were already operating in the critical/emancipatory phase of the framework.

6.3.7 Critique of practice regarding conflicts, distortions and inconsistencies

Evidence of critiques of practice occur from very early in the discussions, even within the

opening descriptive narratives. This is most evident in the messages where explicit statements are made, e.g.,

I think this is a poor infection control practice. [N02]

They want us all to use just dry weight. I will if there is evidence that this is research based...[[N01]

In relation to Johns' questions,

C2 What factors made me act in an incongruent way?

This question follows on from one asking '*how did my actions match my beliefs*', and so the incongruity to which Johns seems to be referring is one between the actions and beliefs of the nurse concerned and providing the descriptive narrative. It might also be extended to incongruities between actions and beliefs of the nurses involved within the discussions.

In the threads used here, it would seem that, in most cases, the nurses are not, in fact, themselves acting in a manner incongruent with their beliefs. In a number of the threads, it is the actions of colleagues who are acting in a manner incongruent with the beliefs of the nurse, which form the basis of the descriptive narratives. There is also, on occasion, an implication that the nurse believes that their colleagues are, for whatever reason, acting in a manner contrary to their own beliefs.

To use, again, thread P02 (infection control practice), nurse N02 describes the actions of her colleagues as being incongruent with nurse N02's beliefs about the proper standards of infection control, and many of the respondents to the discussion cite similar issues relating to the actions of others.

E2 Could I handle this better in similar situations?

There is little direct, or even indirect, evidence from the discussions relating to this question. Due to the lack of closure of the discussions through any kind of summary or direct indication that actions will change, it seems that this type of discussion does not lend itself to such evidence.

6.3.8 Engagement in emancipatory and change processes

There is some evidence that, through a stated or implied wish to change practice, many of the nurses involved in the discussions are operating within this stage of the framework. It is more difficult to provide evidence for the precise aspects of this as per Johns' questions.

Nurse N01 indicates that it is as a result of a wish to compare her own practice with that of other clinical areas, and against the research evidence, that she is seeking information. In this respect, this message does more than provide a descriptive narrative from the descriptive phase of the framework, but also provides evidence that the nurse has already moved into the reflective phase. She is reflectively analysing the situation in which she finds herself (for example considering the consequences for the patients of her actions). She is analysing her intentions (in terms of what she is trying to achieve):

They want us all to use just dry weight. I will if there is evidence that this is research based ... [N01]

and analysing the situation against theory (by considering what knowledge might inform her decisions and actions). The message also indicates that the nurse is already moving into the critical/emancipatory phase by the consideration of conflicts between her current practice and of changes to and possible improvements in practice:

I will [change] if there is evidence that this is research based not just because everyone else is doing it by dry weights and not changing. [N01]

In P02, in a short message, nurse N02 demonstrates that she has moved into and through the reflective phase, and into the critical/emancipatory phase by stating that:

I think this is a poor infection control practice. [N02]

Here, she has reflected against espoused scientific theory (i.e., established infection control practice, or in terms of Johns' question, *what knowledge did or should have informed me*) and established a critique of that practice as being inconsistent with the theory. While an engagement with change is not explicitly stated, it seems implicit in the words chosen to describe her reactions to the practice.

E3 What would be the consequences of alternative actions for the patient? Others? Myself? E4 How do I now feel about this experience? E5 Can I support myself and others better as a consequence?

The lack of evidence in relation to these questions is similar to E2 discussed above.

E6 Has this changed my ways of knowing?

Due to the ways in which most, if not all, of the discussion threads end with no real resolution of the issue, there is generally little evidence in this pilot analysis in relation to this question. None of the nurses contributing the original descriptive narrative closed the discussion by providing any formal indication that their "ways of knowing" had been changed as a result of the discussions. In some of the threads, there is, however, some evidence that there are movements towards change, in both the nurse contributing the original descriptive narrative, and in the other contributors to the discussions.

Thus, for example, in the prone positioning discussion (P03), nurse N03 who opens the discussion also provides (probably entirely coincidentally given the frequency with which

this situation occurs) the final message of the thread, stating that:

I did find a lot of sites on prone positioning [name] thanks but nothing that answers the question about;

1. does it take a Doctors order to prone a patient or is positioning a nursing function
2. if a Doctor writes for 8 to 12 hours can you disregard the order and turn q4 to 6hrs which I feel is more realistic. [N03]

This seems to indicate that, in terms of Carper's ways of knowing on which Johns' questions are based, the nurse has been attempting to address the empirical aspects (i.e., knowledge), without total success.

Having examined each of the phases of the version 1 model in turn, and presented examples to illustrate the points made within the analysis, it is appropriate to amalgamate the issues raised into a discussion of the significance of the findings for the value of this model.

6.3.9 Discussion of findings from pilot threads

The amalgamation of Kim's and Johns' work to develop a model was a first attempt to bring together, from the existing theory, and from work examining reflection in the face-to-face context, a model that might be used to describe and examine reflection in an online environment. I did not expect that it would provide a perfect match at the first attempt. The evidence presented from the analysis of the pilot corpus of threads indicates the ways in which the initial framework did provide a partial structure within which to examine listserv discussions. It also indicates the ways in which it was deficient, and so illustrates areas where the model needs further development.

It is clear from the content of the pilot threads that the three phases described by Kim, i.e., the descriptive phase, the reflective phase, and the critical/emancipatory phase, provide a useful first step to examining the discussions. Many of the messages within the

threads contain a description of a practice event or issue, and later messages contributing to the discussion also contain descriptions for the contributors' own practice experiences and environments. The discussion threads also show reflection and reflective analysis, by both some of the original contributors of the reflective narratives and other contributors to the discussion. There is also a good deal of evidence of critical and emancipatory thinking within the discussions, both through critique of existing practice, and through expressions of wishes to change and improve practice, and to seek evidence on which to base changes in practice. However, it is also evident that the three phases do not occur in a linear manner, moving from description, to reflection, to critique and emancipation, as is strongly implied from Kim's framework. There is a great deal of evidence that in some instances the three phases are occurring concurrently; an important issue to which I will return shortly, and which is one of the main changes needed in developing a revised model.

Kim identified a number of processes within each of her phases. The first process is within the descriptive phase, "description of practice events (actions, thoughts and feelings)." There is certainly clear evidence within the pilot threads of such descriptions of practice events, by both the contributors of the original narratives and subsequent contributors to the discussions. There are clearly descriptive narratives, as Kim describes the products of this phase. The descriptive narratives vary in their form and content, some giving much more initial detail of the practice events or issues and of the reasons for sending the descriptive narrative to the list. The second of Kim's processes within this phase, "examination of description for genuineness and comprehensiveness" seems rarely to be present or evident. The genuineness of the description seems to be self-evident to the members of the list, and there is no indication of questioning whether the events

described are genuine. On a few occasions, further contributions are made to provide more background material to the descriptive narrative, to increase its comprehensiveness.

It seems that this process may not be needed in a model addressing online reflective discussions. The list members generally accept the truth of the description; many are very experienced nurses with decades of practice, and descriptions that did not seem true or genuine would be likely to be quickly challenged. As will be indicated, there is scope for keeping this issue as an element in the model, but not for flagging it as such a major part.

In the descriptive phase, Kim identifies three reflective processes: reflective analysis against espoused theories, of the situation, and of intentions. There is a great deal of reflective analysis against espoused theories, and of the situation itself, although reflective analysis of intentions is less evident. Much of this analysis is provided by additional contributors to the discussions, rather than by the original contributor of the descriptive narrative. In the pilot threads, the original contributors rarely contribute again to the discussions they have initiated, one of the key elements that makes this form of reflective discussion significantly different from offline, face-to-face reflections.

It is evident also that elements of this reflective phase do not occur in a strict linear fashion after the description of the practice event or issue. There are many occasions where the original descriptive narrative contains evidence that the contributor of the narrative has already undertaken some reflection on the issue, in a structured or unstructured manner, before coming to a decision to seek wider discussion of the issue on the list. It may seem evident that such a separation of description and reflection is artificial and does not portray what really happens when people reflect in offline situations. Kim even acknowledges this in saying that “[w]riting of narratives in itself is

analytical” (Kim, 1999, p.1207), but nevertheless asserts a need for descriptive narratives to be purely descriptive and that “after-the-fact interpretations are premature at this stage.” (Kim, 1999, p.1207) However, the purpose here is not to critique Kim’s framework *per se*, nor to discuss its appropriateness or accuracy in all situations, especially the offline situations for which it was primarily designed. The purpose is to examine it against what seems to be happening in online discussions. In this case, the linear separation of the descriptive and reflective phases does not seem appropriate to include in the model being developed.

Kim describes the product of the reflective phase as being knowledge about practice, and it is again evident that such knowledge, from many different sources, is a product of the discussion threads. Different practitioners, even in relation to the same practice event or issue, provide knowledge about differing practices in different clinical settings, for example, differing infection control practices, or different ways of calculating drug therapy regimes. Knowledge is also provided from a wide range of sources, from scientific evidence within the literature and, increasingly, from materials available on the Internet. This use of evidence to support discussions, practice and opinions is itself evidence that many nurses are incorporating within their practice and their thinking the widespread rhetoric of and pressures to move towards evidence-based practice in nursing as in other areas of healthcare.

The third phase within Kim’s framework is the “critical/emancipatory phase,” containing two processes, i.e., “critique of practice regarding conflicts, distortions and inconsistencies” and “engagement in emancipatory and change processes.” Again, there is evidence, even within the small number of threads used in the pilot analysis, that elements of these critical processes are occurring within the descriptive narratives. These provide

evidence of critique of practice occurring before the descriptive narrative is written, while the nurse is reflecting on the event or issue offline. This should perhaps not be too surprising. In the critical incidents chosen so often for examination in offline reflections, the descriptive narratives that begin the discussion threads deal with issues of less than perfect, or even frankly poor, practice, that the practitioner either knows should be changed and improved, or thinks could be changed or improved. Anyone who has been involved with the use of reflection on critical incidents as a component of the summative assessment strategies of educational courses will be aware that students rarely, if ever, choose examples of good practice on which to reflect. They invariably select examples of what they perceive as less than good practice on which to reflect. It seems that, at least in nursing's use of concept, critique is an implicit part of reflection, and usually critique in its more pejorative sense of faultfinding. While Kim includes both the critical and emancipatory elements within one phase, it seems from this analysis that in the model to be developed, these two elements need to be separated out. Critique can occur at all stages, as evidenced in the pilot corpus, while evidence of learning and change are separate issues.

As the analysis of the pilot threads shows, there is least evidence within them for the "engagement in emancipatory and change processes" phase. Many of the discussion threads simply stop with no resolution of the issue, and with no coming to a consensus opinion on the issue or event or the best way to move forward with changing practice. However, this is not something peculiar to this type of discussion on this type of list, as many list discussions fail to achieve any such resolution, as list members, faced with a multitude of discussion threads, move on to other discussions. This lack of resolution or closure may seem to indicate that this type of online, informal list discussion is not suited to reflection, but further material from the main corpus, to be discussed in due course,

does show examples of closure. The fact that there is no overt message within the discussion describing change does not mean that it is not occurring, but the evidence does not exist in the corpus under study.

In addition, while it has never been the purpose of this research (the issue nevertheless being an interesting one for further research in the field) to compare offline and online reflection, there is little evidence of offline reflections resulting in changes in practice. The issue has been rarely addressed in the literature, although Andrews, Gidman and Humphreys (1998) specifically discuss this lack of empirical evidence for improvement in care or practice resulting from reflection.

Having examined in detail Kim's framework, this section concludes by examining the other elements of the model used within the pilot analysis, Johns' set of questions. These 16 questions were matched as seemed appropriate to the various processes within Kim's framework, and the analysis seems to indicate that the matching worked well. However, as with the processes within the three phases, it became apparent that Johns' questions were also applicable to other stages of the whole process. As with the processes within each phase, some questions were more easily applied to the threads than others. Answers to question D1 (*what knowledge did or should have informed me?*) were much more readily seen in the discussions, for example, while it was more difficult to find explicit, or even implicit, examples answering question C1 (*how did my actions match my beliefs?*). Additionally, question A4 (*how was this person/people feeling?*) was the most difficult to find evidence of it being asked explicitly or implicitly.

There is one issue to note briefly here, as it will be dealt with in more detail in the analysis of the main corpus, but because it relates in particular to the ways in which Johns sees his

framework being used in one-to-one reflection within a clinical supervisory context. That issue is the fact that few of the contributions to the discussion thread are made by the author of the original descriptive narrative in each thread. Within a reflective process such as that advocated by Johns, and implicit in the models of Kim and others within nursing, the nurse bringing the original event, or descriptive narrative to the reflective encounter will, of necessity, contribute substantially to the dialogue or discussion of the event.

The fact that, as shown in Table 6.1, the nurse authoring the descriptive narrative contributes rarely to the total discussions does not necessarily indicate a lack of engagement with the discussion. They may, indeed, be reading it avidly, but that reading, through lurking, is not demonstrable in the discussion text. If face-to-face reflective encounters were captured for research or other purposes, then the greater levels of contribution from the originators of the descriptions of the events could be demonstrated, through audio or videotaping, through transcription or notes. This apparent lack of engagement, or perhaps apparently reduced engagement as a simple result of the greater numbers of people who can potentially participate in the discussion, is one of the key features that make online reflective discussions qualitatively different from offline.

It seems, from this analysis, that while this combination of Kim's and Johns' work did succeed to some degree in providing a model for analysing listserv discussion threads for evidence of reflection, it was not wholly successful, and a new model needed to be developed. The two models were chosen as they seemed to be among the most comprehensive in addressing a structure for reflection, but their origins in offline reflection and the ways in which their authors see them as being primarily used did not seem suited to translation to examination of online discussions. Kim outlines a number of ways in which her framework might be applied for use as a research tool, within practice

and for the development of learning, particularly shared learning. However, her framework appears most suited to reflection-on-action, after the event, than the more immediate reflection that seems to be occurring within the discussion list. Indeed, Kim's own approach to the use of reflection, at least as far as her framework is concerned, seems to be explicitly grounded in reflection-after-action, as she describes reflection as "an intentional looking-back by suspending oneself from the situation and what has occurred." (p.1207) While this may be well-suited to academic reflection, and to learning about how to reflect, it does not seem to translate well to a dynamic, ongoing dialogue about events that may still be unfolding, i.e., to reflection-on-action, and within which situations the nurses involved are actively, and often concurrently, engaged.

6.4 Developing the Murray version 2 model

6.4.1 Introduction

While neither Kim nor Johns explicitly exclude the use of listserv and other electronic media for reflection, their models are based in face-to-face reflective encounters and situations. The fact that their models, and the version1 model that I derived from them, did not fully fit with the listserv discussions lends weight to the ideas emerging from the pilot analysis of a different form of reflection. Some of the elements from the version 1 (Kim and Johns) model worked well, but in other aspects, this model did not work well. As a result, my own model was developed, which was then tested against a main corpus of discussion threads, as will be described after presentation of the elements of the model. The new, version 2, model sought to take account of the fact that some reflection can occur offline before the original descriptive narrative is posted to the list. It also sought to account for the nature of the descriptive narrative, in often including reflective and critical

elements, as well as purely descriptive elements, and the issue of the lack of closure or resolution that seems to be a common feature of online discussions.

However, the main issue that emerged from the pilot analysis was that a qualitatively different form of reflection seemed to be occurring than that described in the literature in offline, face-to-face, or pen-to-paper, reflective situations. The nature of this reflection will be analysed in more detail, and supported more strongly, in the analysis and discussion of the main corpus, but at this stage, it was possible to make some assertions about the nature of the reflection. These included it having a much more dynamic and immediate nature, being a group form of reflection rather than individual, and being more active and engaged. It is also a much more public event than the private, even confidential, reflections encouraged by authors such as Johns, and so much more open and sharing. As such, it provides for much more immediate reflection-on-action, and a form of reflection that I have termed ‘online reflection around action’.

This term is used in preference to ‘reflection-in-action’ due to the still unresolved issues of temporal coincidence, i.e., how immediate to the clinical event the reflection must be if it is to be considered reflection-in-action. It is generally thought that reflection-in-action occurs while the clinical event, or the nursing care, is taking place, i.e., while the nurse is actively engaged with the patient. In many nursing situations, this will be while the nurses is in physical proximity, delivering care to the patient, although within telehealth and telenursing situations, this physical proximity may no longer be there, although the real time nature of the care delivery will still exist. However, nursing care rarely takes the form of single, isolated incidents of care, and a nurse-patient encounter may take place over a period of time, from several hours or days to several weeks. One has to ask where in this continuum reflection-in-action can be sited, and whether it always has to be at the

direct point of care. Until such issues are explored further by many nurses in the field, a new term, such as reflection around action, may be preferable (and in online reflections of the type explored in this study, much of the reflection will involve online discussions). It may be that, over time, the two terms will collapse into one, or a different one emerge.

In many respects, the version 2 model emerges from the data provided as part of the everyday reality of online practice, and so the development of the model matches a grounded theory approach. As Benton (1991) notes, grounded theory is suited to the collection of data from real, everyday settings, as opposed from experimental or other artificial environments, and is suited to the exploration of topics that have previously been subject to little research. A certain amount of existing theory informed the development of the model, and Kim's phases can still be seen within it. Nevertheless, the version 2 model is derived mainly from what nurses actually do when they engage in online reflective discussions, so is inductively, rather than deductively developed.

The model itself will be described, following which data from the main corpus will be used to illustrate the ways in which and degree to which the components of the model are present.

6.4.2 Description of the model

The model builds on the three stages of Kim's framework in that it has elements of the descriptive phase (the descriptive narrative starting the discussions being a crucial element of all reflection), the reflective phase and the critical/emancipatory phase. However, even within the first descriptive narrative, there are often elements of reflection and critique.

The model incorporates four broad phases, three of which overtly occur within the online environment, and one of which is clearly linked at the start. The model cannot say a great

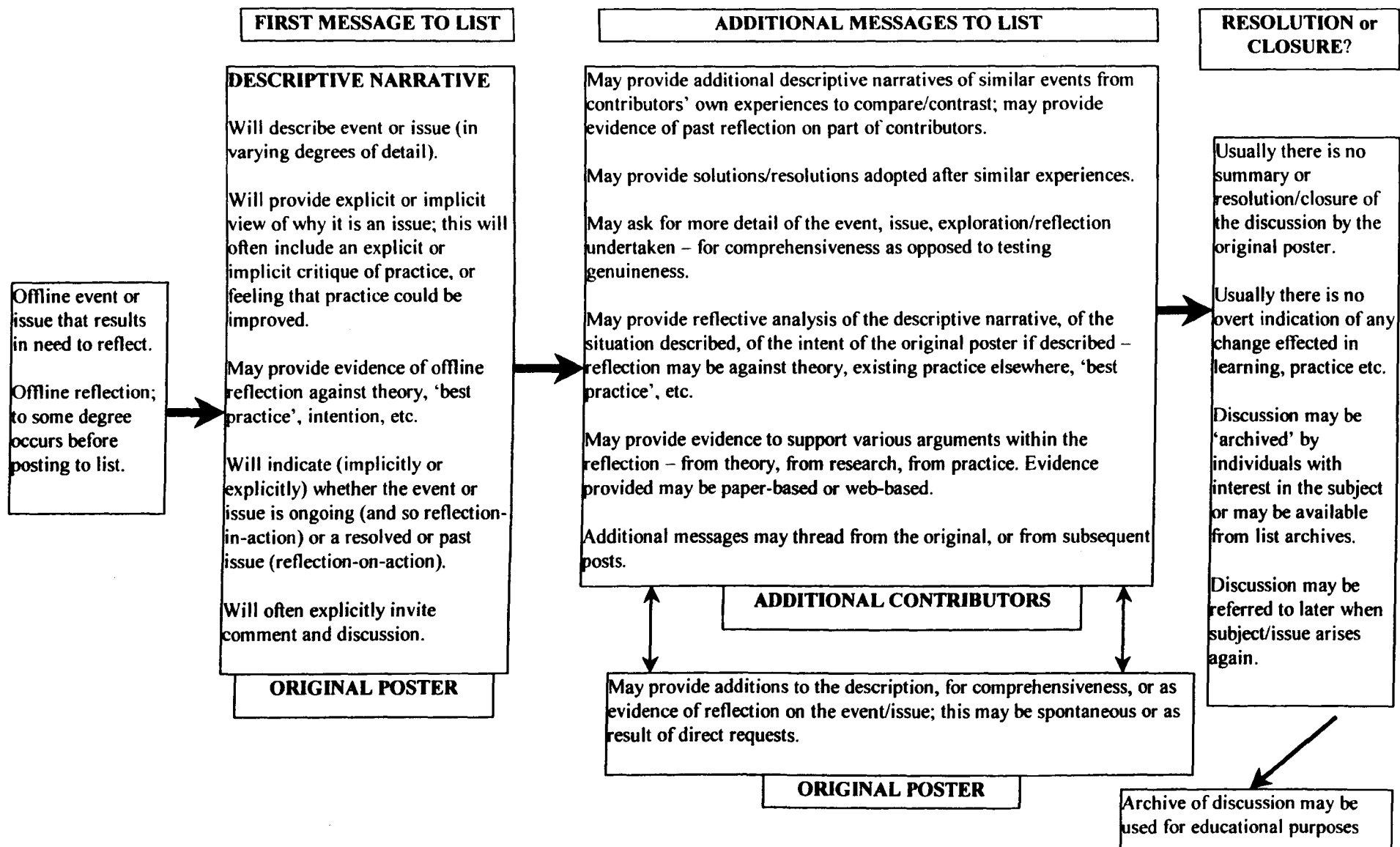


Figure 6.4 Diagram of Murray's version 2 model of reflective discussion in listserv discussion forums.

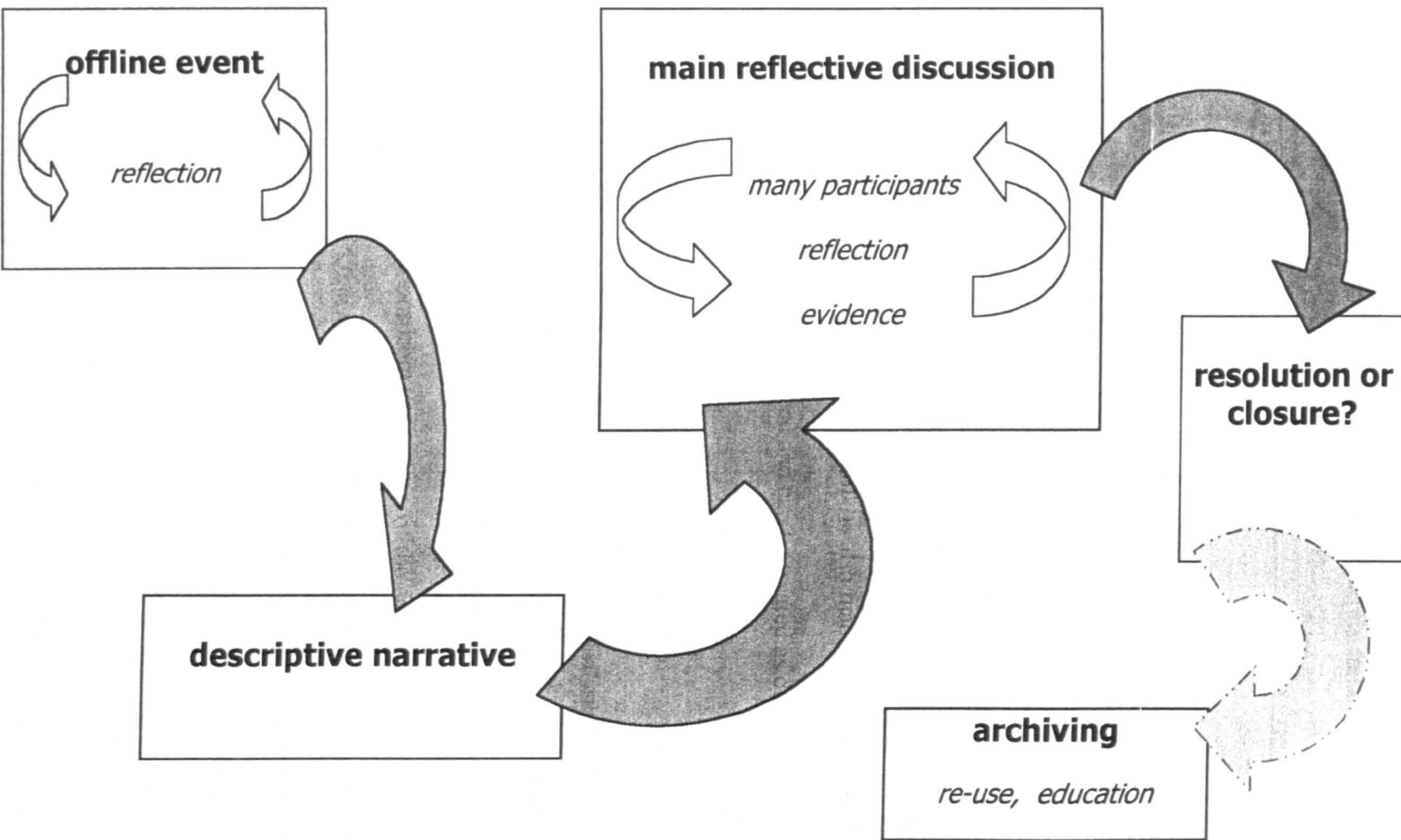


Figure 6.5 Summary representation of Murray version 2 model.

deal about the extent of other discussions that occur outside of the discussion text, except to acknowledge their existence. The main diagram (Figure 6.4) implies that the phases occur in a linear manner, but should be considered in conjunction with Figures 6.5 and 7.2 that attempt to represent, imperfectly as two-dimensional media such as paper ever can, the dynamic nature of the reflection.

There are two starting points for the model, depending on from whose perspective one considers the reflection. For the nurse who posts the original descriptive narrative to the list, the first phase is the practice event or issue, occurring offline either within their own practice environment, or as a result of some other trigger mechanism that causes them to post the message to the list. What these other trigger mechanisms might be will be considered in the analysis of the descriptive narratives, as it seems that there may be several different types of descriptive narrative, although they do not necessarily lead to different types of reflective discussion. For most list members, however, the starting point is the descriptive narrative when it appears on the list. This text carries within it evidence of the offline events as presented by the nurse posting the descriptive narrative. As, for the majority of people involved in participating or reading the discussion materials, this is the starting point, this will be considered to be the first phase of the model.

From the pilot analysis, there seem to be a number of elements that can form this descriptive narrative. As the analysis of the main corpus will show, these elements can occur to greater or lesser degrees of detail, and not all the elements will necessarily be present. However, the combination of several of these elements does result in a recognizable descriptive narrative that is sufficient to initiate a discussion around the issue raised, or around related issues, and results in evidence of reflection. This lack of necessity for all elements to be present is another example of Wittgenstein's idea of family

resemblance. There are common features within the descriptive narratives that allow us to recognize them as such, but it may be difficult to identify one single feature that one can say must be present.

These elements can form a series of questions or statements, and although they are presented in an order which attempts to represent the frequency with which the elements occur, this should not be taken to imply any necessary order of priority. The descriptive narrative:

- will describe an event or issue, in varying degrees of detail. The event or issue will usually be one that is rooted in clinical practice, although sometimes the way in which the narrative is phrased may imply a more academic interest;
- will often explicitly invite comment and discussion from other list members;
- will usually provide an explicit or implicit view by the author of why it is an issue; this may include an explicit or implicit critique of the practice, or feeling that practice could be improved;
- may provide some evidence of offline against theory, ‘best practice’, intention, etc.; and
- may indicate (implicitly or explicitly) whether the event or issue is ongoing (and so online reflection around action) or a past issue (reflection-on-action), but one which the author wishes to consider before its next occurrence.

There is an offline phase that occurs before this one, experienced directly by the nurse involved and vicariously through his or her descriptive narrative by the other members of the list. For most list members, the nature of this offline event is conveyed totally through the text of the descriptive narrative, and the nature of this narrative determines whether other list members contribute to a discussion arising from it, or whether it receives no responses. The nature of this event or issue and the descriptive narrative may be probed by other list members in the main reflective discussion, but in all cases encountered within

this research, the genuineness of the event or issue and of the account are implicitly accepted by the list members.

The main reflective discussion phase, formed by the main elements of any discussion thread, consists mainly of contributions from other list members. As was evident from the pilot analysis, the nurse posting the original descriptive narrative rarely contributes significant numbers of messages to the main reflective discussion. When they do contribute, it is often to provide more detail to increase the comprehensiveness or clarity of the descriptive narrative.

Again, we can identify elements that can be described by questions or statements, which may be part of the main discussion. As with the elements of the descriptive narrative, they bear a Wittgensteinian family resemblance and may not all be present in all discussions, or may be present to varying degrees. For clarity, the elements have been separated into two categories: those pertaining to contributions from other list members and those relating to contributions from the nurse posting the descriptive narrative. Messages within the main corpus posted by other list members:

- may provide additional descriptive narratives of similar events from their own practice experiences to compare/contrast; this may include some evidence of past reflection on the part of the contributors on similar events or issues
- may provide solutions or resolutions they or colleagues adopted after similar experiences;
- may provide evidence to support various arguments within the reflective discussion; this may be from the scientific literature, from theory, from research, or from practice. The evidence cited may be in paper-based or, increasingly Web-based sources;
- may provide critique of the practice described in the narrative, supported by materials from theory or practice;

- may provide reflective analysis of or commentary on the descriptive narrative, of the situation described, of the intent of the original poster if described; this reflection may be against theory, existing practice elsewhere, best practice, etc.;
- may ask for more detail of the event, issue, or the exploration/reflection undertaken; this is often for comprehensiveness or clarity as opposed to testing the genuineness of the narrative;
- additional messages may thread from the discussion, which may result in new discussion threads on related or other issues.

Contributions to the main discussion from the author of the descriptive narrative usually provide additional detail to the description, for comprehensiveness or clarity, or as evidence of reflection on the event/issue. This additional detail often results from direct requests, but may derive spontaneously from the nature of the discussion. More rarely, their contributions may be categorised under other of the elements described above.

The final phase is the ending of the discussion, and what evidence exists in the discussion of learning having occurred, or being implied, or of changes in practice. This has been termed the “resolution or closure” phase. In reality, explicit, or even implicit evidence of closure or resolution is often absent, as the author of the original narrative tends not to provide a message closing the discussion or specifically giving an indication of learning, change in practice, or intention towards either. While the messages relating to closure or resolution, should they exist, would occur within the main discussion, it is useful to separate out this phase for consideration.

The discussions from the list may be saved by individual list members, especially where they have an interest in the issues discussed. Although the archives of this particular list are not readily accessible, other nursing discussion lists, e.g., NRSING-L and

NRSINGED make their archives accessible and searchable on the Web⁵. These archived discussions may be referenced when the issue is raised again for discussion; many issues recur several times throughout the year. While there was no material in the pilot analysis to demonstrate this effect, there was material in the main corpus and in the wider list discussions.

6.5 Analyzing the main corpus

In the next sections, I will address each of the stages of my version 2 model in turn and show how text from the discussion threads demonstrates the presence of the various elements identified in the above description of the model. Examples will be used primarily from the main corpus, although some reference will be also made to materials from the pilot analysis; the two data sets are combined and can be treated as one for the purpose of this analysis.

In section 6.6 and its subsections, the descriptive narratives are analysed. Section 6.7 examines the main body of the discussion threads, primarily the contributions of other participants in the discussion other than the author of the descriptive narrative, while section 6.8 considers contributions from the authors of the descriptive narratives to the discussion threads. Section 6.9 investigates the issues or resolution or closure of the discussions and section 6.10 examines the re-use of material from discussion threads, both within later threads and for other purposes. Section 6.11 concludes the discussion of the main corpus through a brief examination of the applicability within this model of Johns' questions.

⁵ The NRSING-L archive is available at <http://mailman.amia.org/pipermail/nrsing-l/> and the NRSINGED archive at <http://www.escribe.com/medicine/nurseedu/m15.html>

The main corpus used to test the model consisted of 16 message threads, totalling approx. 341kb of text and 313 messages. They are listed in Table 6.2, together with the subject headers used and a short description of the content of the discussion. The threads chosen mainly address clinical issues, that is, issues related to patient care in clinical, mainly hospital, environments. A number of the threads also primarily, or as a component of the discussions, address issues of multi-professional working. Aspects include the interface and interactions between nurses' work and that of other health professionals, and issues raised when nurses feel that other health professionals' actions, in particular their effects on the work of nurses, are felt to cause problems. The most obvious example here is thread M16 – nurses not following MD orders.

6.6 Descriptive narratives

6.6.1 Degree of detail and categorisation

All of the threads selected for the main corpus and the pilot corpus contain a descriptive narrative, but the precise nature and degree of detail of the narratives vary. Many of the narratives are short, but within them manage to convey the situation, probably due to the shared experiences of many nurses who can easily recognize, without the need to go into great detail, the situation being described. Typically, the descriptive narratives are in the range of 80-150 words, although some are less than 40 words. A very few are longer, with the longest within the corpus examined being almost 400 words (M23).

The descriptive narratives were analysed to determine if there were any obvious categories or types into which they could be subdivided. While a number of general categorisations do seem to emerge, they are not mutually exclusive, and the numbers involved in this study are probably not sufficient to do other than suggest categorisations

Table 6.2 Discussion threads used as main corpus in analysis using Murray model version 2.

Thread	Summary of discussion content	Kb of text	No. of messages
M07 – assessment tools	Tools for nursing assessment and recording of patient outcomes, including care planning and clinical pathways	13	14
M08 – blue food dye	The use of blue food dye within naso-gastric feeds for patients; included time intervals between changing administration sets and contents, and side effects such as diarrhoea.	37	41
M10 – charting by exception	Issues around the use of clinical pathways and the review and recording of patients' condition.	6	6
M11 – charting by exception (2)	Similar issues to M10, but more focus on computerised systems and policy.	42	28
M13 – compare real nursing to textbook nursing	Practice, education and safety issues in the disposal of needles and syringes after drug administration.	22	23
M15 – flushing med through a g-tube	Administration of drugs in capsule or tablet form to patients with naso-gastric feeding tubes.	31	33
M16 – nurses not following MD orders	Nurses' differing practices in administration of eye medication when doctor's in-hospital prescription differs from patient's home administration.	25	21
M17 – wasting narcotics	Differing policies and practices for the disposal of narcotic drugs when dose given is less than contained in ampoules.	17	16
M18 – tube feedings/residual	Issues in the administration of naso-gastric feeding therapy for patients.	9	6
M19 – transfusing blood and D5W concurrently	Discussion of specific incident and whether nurse should follow doctor's orders for procedure that they know or suspect to be dangerous to the patient.	7	8
M20 – heel sore	Differing practices in the care of pressure areas, especially in the (potential) development of heel sores.	22	17
M21 – monitoring patients	Cardiac monitoring equipment and whether non-nurses should be monitoring the output.	22	16
M22 – hydration at the end of life	Discussion of practical, physiological and ethical issues around the hydration of dying patients.	26	22
M23 – hydrogen peroxide use for wound care	Discussion of whether hydrogen peroxide therapy to a particular wound was the appropriate treatment.	22	19
M24 – herbs	Issues around herbal therapies patients may be taking, and how they can be recorded in nurses' assessments of patients and their medications.	24	27
M25 – temp spikes following joint replacement	The incidence of sharply elevated temperature in patients following surgery for hip or knee replacements.	16	16

that might merit further study with a larger corpus. One division that can be made is between narratives that specifically refer to a particular clinical incident that forms the

main focus of the narrative, and narratives that refer to more general issues, without reference to a specific clinical incident or small group of incidents. Examples of the first category, where reference is made to a particular incident or incidents include:

P02 – infection control practice:

I saw some of my co-workers wearing a same gloves to empty patients' foley bags and urinals...

M16 - Nurses not following MD orders :

I ran into a situation last night that really got my goat. I had been assigned a patient...

M20 - Heel sore :

I have a patient who is suffering from ESRF and is bed ridden. She developed a stage 1 sacral sore...

These examples illustrate specific clinical situations with which the nurse has been involved, sometimes very recently. Some are even ongoing situations, an important issue that will be discussed later, as these examples seem to show evidence of real online reflection around action.

Examples of the second category, i.e., descriptive narratives that refer to more general issues, without reference to a specific clinical incident or small group of incidents, include:

M08 - Blue food dye:

Does anyone else use blue food dye or methylene blue in with tube feedings...

M18 - Tube feedings / residual :

How do you folks check for residual on patients getting continuous tube feedings?

M21 - Monitoring Patients:

I was wondering what other hospitals are doing when it comes to monitored patients...

Other categories that seem to emerge include:

- a research or theoretical orientation to some of the situations or issues in the narratives;
- a subset of threads that deal with the multi-professional work interface; and
- a subset of threads where, while the situation described is a clinical one, the patient described is the nurse themselves or one of their family members.

This latter category raises an issue that will be addressed in a number of ways throughout the data description and discussion, that of the amount of self-revelation that nurses include in many of their messages to a discussion list that may number over 1,000 members. These three categories overlap with the two already described, i.e., any thread may fall into several categories, depending on the way in which the categories are constructed for the purposes of analysis.

Threads with a more theoretical or research orientation, rather than focus in specific clinical situations, include:

M07 - Assessment tools:

I would like to do a study to review the effectiveness of clinical pathways...

M11 - charting by exception 2:

Could some please give me a simple definition of 'charting by exception'?

M24 – Herbs:

I was reading some articles today and was wondering somethin.

These particular threads raise more general issues than many of the others used in this analysis. As will be seen in the matching of the threads' content against the elements of

the model, they do contain elements that suggest that they are valid examples of reflection on practice and practice issues.

Multi-professional work, and the interaction between health professionals, especially between doctors and nurses, forms a strong subset of the threads. Examples include:

M19 - Transfusing Blood and D5W CONCURRENTLY:

Recently in ICU, a doctor ordered a RN to transfuse IV D5W with KCL to a patient who was receiving blood transfusion at that time ... Finding it strange, the nurse queried the doctor and got shouted at: "DON'T QUESTION MY ORDERS, JUST DO AS I SAY". The doctor even forbade the nurse to cannulate another IV line for the patient.

M23 - Hydrogen peroxide use for wound care:

I spoke to the Dr. re my concern and hydrogen peroxide being cytotoxic to cells and he validated my concerns and said this is the treatment he uses and it works. ...My bottom line is there any one out there that has done extensive research on hydrogen peroxide and use in treating wounds. I know what the AHCPR guide lines and the Doc won't listen.

Issues raised in some of the threads that cannot be dealt with in this study, about the relationship and role boundaries between nurses and other health professionals, especially doctors. Threads used within this corpus, and others noted as the full year's threads were first scanned, seem to indicate that this provides a frequent area of discussion on this list, and can raise some of the more emotive and strongly opinionated discussions. This could be another area that provides potential for future research, for example into the possible ways in which online discussions might provide a safety valve for nurses' perceptions of the shortcomings of many of their professional co-workers.

The final categorisation noted was the subset of threads where, while the situation described is a clinical one, the patient described is the nurse themselves or one of their family members. While relatively few examples have been used within this study, as the situations discussed in many of the threads encountered did not fit with the original

criteria for inclusion within this study, examples do occur within the list quite frequently.

One example used within this corpus is:

My problem now is that my husband is in the hospital with a strep infection from a rusty metal wire... (M23)

This example, as with many others where the nurse themselves or their family member, goes into considerable personal detail. It highlights the degree to which the nurse members on the list feel comfortable in exposing such information, and their reactions, thoughts, fears and emotions. This strongly suggests that members of the NURSENET list feel themselves to be part of an online community. Several examples of this degree of disclosure and exposure which did not fit the criteria for this analysis, but which illustrate some of these important points, occurred within the year's threads. All related to list members' descriptions of the illness and eventual death of close family members and serve to demolish the myth, unfortunately still too prevalent, that emerged from early CMC research, suggesting that CMC could not convey emotions. The following sequence of messages, taken over several days from the initial corpus illustrate the point:

Oh boy! I really screwed up today! I gave Dad his ativan(which he is used to) plus, I put a scopolamine patch behind his ear to combat the dizziness. Then, I gave him 2 percocets for the headache. Dad was a zombie! Now, I feel awful! ... I feel so stupid and awful that I made Dad suffer. I was only trying to make him comfy. What a schmuck! He could barely walk! I over-medicated my own Dad!

...
Hi folks.....Dad can no longer walk on his own. He is now incontinent. I cried my heart out when I got home just now. But, while I was with Dad, I joked a lot and he laughed a lot. ...But, Dad is not in pain....he is just failing.....dying.

...
After spending the past 2 days/nights with my Dad, I have seen him deteriorate quickly. I pray that God takes my Dad in his sleep. He kept saying to me tonight....."I want to go home". I said"Dad,you are in your own home." He responded....."no, I am not.....I want to go home." I came home and cried my eyes out ... I can no longer stand to see him suffer.....to see Mom suffer, my brother suffer ([...] is head-injured for any of you who understand head-injury). I feel like breaking in two right now.Mom has chemo on Thursday. I just pray that I continue having strength. Right now, I am depleted.

...
My Dad is actively dying tonight. ...I think my Dad will die tonight. When I left, I told him I loved him and gave him a hug.....and, said....."Dad, it's ok if you want to leave right now.....we will be together again". He was comatose, but opened his eyes and said..."ok, [...]".

...
My Dad died peacefully at home last night

While the degree of detail included in the descriptive narratives varies, it is usually enough to promote a discussion without any explicit request by other list members for more detail. On occasions, more detail is requested or volunteered, an issue that will be illustrated and discussed later in consideration of the main reflective discussion phase. On many occasions, the descriptive narrative seems to draw on an assumption of shared experience or knowledge among many of the list members. As most list members live in the USA, there would be an expectation of certain general similarities in clinical experience, even accounting for differences in regulation between different states, and the different lengths of time nurses have been qualified (and so often specialised). However, even nurses from other countries have similarities in experience and can appreciate the situations, issues and contexts described and can contribute to the discussions.

This ability to share differing experiences and perspectives is one of the factors that lead some nurses to value this type of informal list discussion. For example, several of the respondents in Lakeman and Murray (2000), described how, through an international perspective, they were exposed to different ideas and perspectives, and so were able to develop a new awareness of and insight into professional issues. Some stated that they / been able to compare and contrast models of service delivery and outcomes in different countries. In specific examples, nurses stated:

I like reading for the international perspective and support Nursenet provides. ...this list gives me a glimpse of what it really is like to work there, not some clean brochure view. (NQ99:20)

I keep current with the local, national and international nursing scene via the net. (NQ99:26)

These issues, of shared experience and knowledge, are among those that make it more difficult for non-nurses to research nursing issues.

6.6.2 Invitation to comment

In most descriptive narratives, the author makes it clear that they are inviting discussion of the issue(s) they have raised. This may seem an obvious point, but it is, I feel, an important one. If we look at all of the messages posted to the list, we can see that, in any period of time, a variety of different types of messages are posted. Only a small proportion of these can be deemed to be reflective discussions as per the criteria and elements I have outlined in the model. Many are not intended to promote discussion, being announcements, or being comments on other messages or contributions to reflective discussions that have been started, or to other discussions that do not fall within the reflective model.

As was indicated in Chapter 4 and earlier in this chapter, the messages selected to be the main and pilot corpuses comprise only a small proportion of the total messages sent to the list over a one-year period. At a very rough estimate, they comprise approximately 2% of the year's messages. In addition, it is likely that there will be other examples of reflective discussion that were not selected for analysis, and that re-examining the whole year's worth of messages against the model would be able to identify. It is, therefore, not unreasonable to assume that such reflective discussions could form up to 5-10 % of the total messages on the list.

The issue of the types of messages posted to discussion lists was one of the main focuses of the research that resulted in my MSc dissertation (Murray, 1995b, 1996), where a very simple categorisation of message genres identified the following:

- contribution to discussion
 - without copying in of text
 - with copying in of text

- request for information
- answer to information request
- information presentation (without prior request)

This was at a time when little, if any, nursing research had attempted to analyse nurses' CMC practice, and when there was little similar work from the wider CMC community. As was illustrated in Chapter 2, work since has, in essence, shown similar categories

A few examples will illustrate the ways in which authors of the descriptive narratives invite discussion. They range from the explicit requests for materials:

Please give me some input about this issue. (N02)

Any hints would be helpful (N15)

If anyone has any articles or references please email me (N01)

to requests framed in a manner that seems to be more of an invitation to discussion:

Does anyone else use If not do you use anything ... (N08)

Am open to suggestions and to hear what other folks are doing. (N18)

I haven't seen any discussion so far so just thought I'd give it another try. (N22)

It was not the intention of this research to attempt a comparison of messages that lead to a discussion against messages that did not promote discussion or elicit any response. Nor are messages that elicited a negative response as to their suitability for the list or as a way of seeking information or engaging discussion examined in detail. These could, however, both be fruitful areas for further research, particularly if one were seeking to develop guidelines for netiquette within such discussion forums or their more formal use as reflective mechanisms. It is, however, pertinent to briefly illustrate one type of message and exchange which, as they often relate to clinical issues, might seem to match some of the elements and criteria of the model.

Examples of lack of response, or negative response, occur with some messages posted to the list by student nurses as part of educational exercises, particularly when a large group of students from one institution posts similar messages within a short timeframe. An example of such a message is:

Hello, I am currently a sophomore nursing student at the University of [...]. I was wondering if you would help me answer a few questions about nursing for me.

1. How has the role of the nurse changed in the past 30 years?
 2. What are some specific strategies nurses can implement to impact health care today?
- Thank you very much for you time and knowledge.

This particular example is one where the student at least indicates the reason for the questions asked, while other instances have provided fewer contexts. Often, a message of this type will be ignored, or will elicit responses typified by:

It seems that some of these nursing student's want their assignments done for them!!!!

However, as such exercises, where students are required to join a discussion list, contribute a message, and provide a class report of the responses and experiences are becoming increasingly frequent on NURSENET and other nursing discussion lists, it has raised *interesting discussion of the issues*. Antipathy has often been apparently directed at the students, although further discussion has often moved the blame to the teachers responsible for not sufficiently briefing the students on the required netiquette. The following example extracted from such an exchange illustrates some of the issues:

No, as one of them said, their assignment was to ask us those questions. However, the instructor didn't think about the fact that she was asking every one of her students to log onto nursetnet and ask the SAME QUESTIONS. I don't think this is the students' faults, rather an inappropriate assignment from their instructor. Maybe if the instructor signed on then we could tell him/her what an inappropriate assignment this was and offer a few points of netiquette to him/her.

These examples help to illustrate the importance of some kind of explanation of the rationale or context of the descriptive narrative, and we now turn to consider this element

within the model.

6.6.3 Why is there an issue to discuss?

The elements discussed so far have been part of the descriptive component of the model, and would fit within Kim's framework. However, the provision by the author of the descriptive narrative of a view as to why there is an important or discussion-worthy issue within the narrative is an illustration of the way in which this new model fits to circumstances better than Kim's or other frameworks. This is because this element includes within it evidence of a feeling that practice could be improved, or an explicit or implicit critique of the practice described in the narrative. In this respect, it indicates that some degree of reflection and/or critique had occurred offline. There are several examples within the corpus.

Sometimes, there is an explicit critique of the practice, the most obvious example being:

I think this is a poor infection control practice. (N02)

Other examples include:

Some docs prescribe benadryl.....they are dead wrong! It exacerbates restless leg syndrome. (N04)

The nurses are very frustrated. First of all we think it's outrageous for this to have been happening for so long. (N05)

If evidence suggest this is not an accepted practice, then we could use it to "hit" the doctor hard on the head, ha. I hope we could all help this poor nurse stand up WITH EVIDENCE to this doctor! (N19)

It should be noted that, in several of the examples above, the practice critiqued is that of other health professionals, not the nurses, but the situation impinges on the work of the nurses involved.

Sometimes critique of the practice described is not so overt, but is implicit in the way in

which the situation is described. Here it is either apparent that the nurse does not agree with, or thinks that there is a problem with, the practice described, or the way in which the nurse asks for advice, information or discussion provides evidence for such an interpretation. Examples include:

Our QI department is "shocked" that we might be keeping them for later use. Although our policy says to waste, in practice it seems a "waste". (N17)

They have since eliminated the monitor tech & combined that position with the secretary position. This can be a very difficult situation for both us nurses & definately for the secretary ... How are other hospitals monitoring your patients? (N21)
In tracking patients who have undergone hip or knee replacement, has anyone noticed a high percentage of post-operative fevers..... was just wondering if others are seeing the same things ... (N25)

This element has a degree of overlap with the next element to be discussed. In this version of the model, the previous element has combined two areas that may, on reflection on the analysis, be better separated out into two elements, i.e., the view that there is a pertinent issue and the explicit or implicit critique. In the final version of the model that will emerge from the discussion of the analysis of the corpus and other data, and is presented in Figure 7.1, these elements will be separated.

In other descriptive narratives, there is little critique of others' practice, recognizing that there might be other ways of working. Discussion of the practice issues is sought in order to uncover these other ways of working, with evidence from other nurses' practice experiences or knowledge of evidence relating to the current best practice. This shows that some kind of offline reflection has occurred, the realm of the next element.

6.6.4 Evidence of offline reflection

Many of the descriptive narratives contain evidence, either explicit or implicit, and to varying degrees of detail, of a process of reflection having occurred since the events or issues described, and before the nurse makes a decision to post the narrative to the list.

This offline reflection may have included attempts to reflect against existing theory, through mention of resources that have been consulted or sought, or may have been reflection on the situation itself and the intentions of the health professionals involved. These are three of the elements within Kim's reflective phase, but are occurring at an earlier stage, i.e., within the descriptive narrative phase.

Examples of reflection against existing theory, practice or evidence include:

I was reading some articles today and was wondering somethin. I had previously had a discussion about this at work one night. (N24)

I am sure most of us have been taught that D5W and IV blood don't mix, more so if Potassium Chloride is added in the dextrose solution. (N19)

I have researched this and have spoken with a pharmacist who also has it..... (N04)

Examples of reflecting on the situation itself, and/or the intentions of those involved, include:

I discussed my concern with some of these co-workers, and their answers was,... (N02)

How do you all feel about this? Have you had another nurse go against md orders only to make it more difficult to care for the patient when you have him and you won't do what other nurses have been doing? (N16)

How would treat or manage a blueish black soft heel like that? I can't use any form of dressing here like the douderm wafer right? Wonder what you all do with such an eroded heel like that? (N20)

6.6.5 Is the issue ongoing?

The final element that may present within the descriptive narrative is evidence on whether the event or issue described is still ongoing. If the issue is not ongoing, it may be something that has occurred, finished and been resolved, but has nevertheless lead to a need on the part of the nurse to reflect on it and discuss it within this forum. If the event is still ongoing, as the evidence from some of the narratives indicates, then this is a form of online reflection around action, rather than the after the event reflection-on-action that is almost invariably seen in the offline world. In examining the literature on reflection within nursing, no examples were found describing examples of reflection-in-action,

although many papers advocated its development, and implicitly saw the educational use of reflection-on-action as way of preparing nurses to undertake reflection-in-action. This is one of the key areas in which the reflection seen within discussion lists is different.

In some instances, it is clear from the descriptive narrative that the situation is still ongoing. In the first example, the use of the present and future tenses (“now,” “is to start,” “is being treated”) indicate the current nature of the issue:

My problem now is that my husband is in the hospital with a strep infection from a rusty metal wire ... His treatment for 5-7 days is to start Hydrogen peroxide rinses to the wound 3 times a day and cover it with a 4x4. No packing just cover the open wound. ... My husband is being treated with ... (N23)

Here, the subsequent discussion, with input from nurse N23, reveals, over a period of several days, the ways in which she is actively engaged with the reflective discussion as the treatment of her husband unfolds and changes.

In another example, again the use of appropriate tenses (“I have,” “has already”) indicate that the situation is one in which the nurse is currently actively engaged:

I have a patient who is suffering from ESRF and is bed ridden. She developed a stage 1 sacral sore and her right heel has already turned blueish black ... However, there was no break in the skin yet. (N20)

In others discussion threads, evidence solely from the descriptive narrative is more equivocal, and it is only in the context of going on to consider the main reflective discussion that it becomes readily apparent that online reflection around action is occurring. Due to the infrequency with which the author of the original narrative contributes to subsequent discussions, not many examples exist within the corpus relating to this. However, examples from the main corpus indicate that other nurses provide an element of online reflection around action through providing their own descriptions of practice events in which they are actively engaged. One brief example, from thread M22

(hydration at the end of life), illustrates other nurses providing their own practice

descriptions:

we have a pt who is 86, an amputee, diabetic, heart failure, has only 11% of her kidneys left ... She is also very sick, her worst complaint is she cant eat or drink anything without throwing up (R22-11)

Also, in thread M08 (blue food dye), many nurses describe their own current practice, or that of their colleagues, as contributions to the discussion.

The possibility of nurses using such discussion forums to provide an almost real-time consideration of practice issues is one of the key elements of reflection in such online forums. In concluding this consideration of the elements of the descriptive narrative, it is necessary to take a step backwards, outside the text of the discussion itself, and consider the offline phases that precede the narrative, i.e., the practice event or issue and the offline reflection on it that occurs. In the version of the model being examined, these are conflated and represented as one phase, although as will be seen in the discussion and the final, amended version of the model, these are better represented as two distinct phases.

6.6.6 Offline: the event and the reflection

It is obvious, but worth repeating, that the only evidence of the offline event or issue, and of the nurse's degree of reflection on the event, is contained in the descriptive narrative she or he posts to the list. On rare occasions, further detail or clarification is provided in subsequent messages. We have to rely solely on the text provided. The foregoing examination of the elements of the descriptive narrative have shown clearly that some kind of description of the event or issue is always provided, and, in varying degrees of detail, other elements, such as evidence of reflection, critique, etc. are also provided. We can say little more here about the offline event and the reflection that has occurred, and

so, this seems an apt occasion on which to follow the advice of Wittgenstein – “that of which we cannot speak, we must pass over in silence” (Wittgenstein, 1961).

Having considered the descriptive narrative, it is appropriate to move on to consider the next phase of the model, the main reflective discussion, and this will again be examined through taking each of the elements in turn and providing examples from the discussion threads.

6.7 Main reflective discussions

6.7.1 Introduction

The main part of the discussion thread comprises all the messages in the thread following the opening descriptive narrative. Most of the contributions to these threads come from list members other than the author of the descriptive narrative. The following sections will address each of the elements identified in the model in turn, starting with the contributions from other list members, and concluding with a consideration of the contributions made to the discussion by the descriptive narrative authors. This will then lead into consideration of the closure/resolution phase of the model.

The issues raised will introduce some of the ways in which the reflection occurring within the discussion threads differs from offline reflection. They will also demonstrate the ways in which the nurses contributing to this list and these discussions are integrating many aspects of the online environment into their daily lives, for example through the frequent use of references to material and evidence available on the Web.

Table 6.3 (similar to Table 6.1 in the discussion of the pilot analysis) shows, for each

Table 6.3 NURSENET discussion threads and contribution by descriptive narrative authors.

Thread	Total no. of messages in thread	No.of messages contributed by author of descriptive narrative (inc. narrative message)
M07 – assessment tools	14	5
M08 – blue food dye	41	1
M10 – charting by exception	6	1
M11 – charting by exception (2)	28	1
M13 – compare real nursing to textbook nursing	23	2
M15 – flushing med through a g-tube	33	1
M16 – nurses not following MD orders	21	9
M17 – wasting narcotics	16	2
M18 – tube feedings/residual	6	1
M19 – transfusing blood and D5W concurrently	8	2
M20 – heel sore	17	7
M21 – monitoring patients	16	2
M22 – hydration at the end of life	22	1
M23 – hydrogen peroxide use for wound care	19	3
M24 – herbs	27	2
M25 – temp spikes following joint replacement	16	6

thread within the main corpus, the total number of messages and the number of messages, including the original descriptive narrative, contributed by the author of that narrative. As can be seen if we aggregate the figures from the pilot and the main corpus, the author of the original descriptive narrative did not contribute again to the discussion by posting a message in 8 of 21 threads. In another 6 threads, they made only one additional contribution to the discussion, and the nature of these (clarification, comprehensiveness, or closure/resolution) will be addressed in due course. Thus, in 14 of 21 threads (67 %), the originator of the discussion made no or only one additional contribution to the discussion. This does not, of course, mean that they did not gain benefit from the discussion, as the issue of lurking is well known and well documented in the CMC literature and has already been addressed.

6.7.2 Additional descriptive narratives

One of the more frequent forms of contribution to the main discussion was the provision of a form of descriptive narrative, addressing similar events or on an aspect of the same issue as was presented in the descriptive narrative. This often related to the contributor's own practice experience of similar situations. In some instances, this additional practice description also indicates evidence of past reflection, enabling the contributor to provide the benefits of such reflection to the discussion. In the model (Figure 6.4) these two issues are conflated into one element. However, as the examples to follow will show, they are better separated into two individual elements, and so will be treated as such in the presentation of examples, and the revised final model will make this adjustment.

The simplest form of additional practice description is the “we do that too” type that occurs frequently within thread M08 – blue food dye:

we use a small amount of blue food dye (R08-1)

We use blue food dye (just a little dab will do you... believe me!) in our tube feed bags. (R08-3)

We do, and when my husband was in ICU in another hospital they did also. (R08-10)

Sometimes, a little more detail is provided of reasons for the practice described:

No methylene blue, it freaks the baby docs out when the urine changes color. We use blue food color, our biggest problem is keeping folks from overdosing people on the stuff. As Erma Bombeck said once, "There is no such thing as navy blue food." (R08-6)

We have used blue food dye when we are trying to figure out if its feeding oozing out from around G-tube site or other fun stuff like MRSA. (R08-19)

This same thread also provides good examples of two issues that arise in a number of the threads, specifically differing practices and examples of critiquing routine practice. In response to the apparent widespread practice described in the above examples from thread M08, one nurse says:

Well, I work at an institution where the response to blue food dye is "who put food dye in the tube feed" and the bag is changed as quickly as possible. (R08-11)

While a number of threads indicate commonality of practices in different clinical environments, one message that comes across strongly is that many of the nurses contributing to the discussions abhor the routinization of practice. This is further evidence that, for some of these nurses at least, reflection may be already an essential element of their practice. This critique of routine practice is illustrated in the following exchange:

The other day I didn't use the dye in a tube feeding because the man was no longer intubated, he was eating regular food as well, ... When I turned the patient over to the next shift, the nurse almost had an MI because the tube feed was not dyed. I explained to her that we were not dyeing his diet...his juice, puddings, ... Also, I don't like to add that stuff if not necessary. The on-coming nurse couldn't accept this. Her reason was that "we always dye tube feeding". Oh well..... (R08-4)

The term 'anal retentive' comes to mind hearing about the oncoming nurse. We use judgement. (R08-5)

I hate reasons like that! We leave the dyeing to the nurse's discretion, they use it if they think it is needed. (R08-10)

Thread M20 (heel sore) provides several good examples where, in response to an invitation to provide treatment advice:

How would treat or manage a blueish black soft heel like that? I can't use any form of dressing here like the douderm wafer right? Wonder what you all do with such an eroded heel like that? (N20)

other nurses provide examples from their own practice of the treatment they would provide:

As long as the heel is not open or draining I would watch it and do nothing, other than pressure relief (R20-1)

First of all, keep all pressure off the heel. Suggest one of the foam rings that completely surrounds the ankle,... (R20-4)

I would protect the area (sheepskin or something) and watch it carefully for signs of cellulitis or gangrene. It may need to be debrided. Hope nothing has to be amputated. (R20-6)

Although stated in different ways, other contributions indicate similar kinds of practice. The variation in practices indicated is an illustration of the complexities of the issues concerned, and of the fact that what might be termed best practice is not always universally applied.

Several additional examples of using their own experiences to compare or contrast with the descriptive narrative starting the thread exist within the corpus. For example, in thread M17 (wasting narcotics), in response to the questions:

You have tubexes of 10mg MS. (you have no clue if you will need it all during your shift) Do you go back each hour and sign out the 2, waste the 8mg and go back the next hour and repeat? Or if you save this 8 mg for later use, where do you keep it? (N17)

several responses indicated differing practices, and provided differing reasons or degrees of justification for the practice:

We always waste, never save for future doses. Who knows if someone takes the MS and replaces with saline or sterile water or otherwise tampers with an already opened med? (R17-1)

I would contact the pharmacy and get the smallest dose available. Use the 2mg and waste the rest. ... I know it seems a waste but, in this day and age you must not only protect yourself but others. You have no guarantee that although you lock the dose in the narc cabinet or where ever it is not being removed by someone else. (R17-4)

If I know that is is likely to use the whole 10 mg of MS during my shift, I will sign out the whole tubex and use it in divided doses as ordered. I document each time the 2 mg is given to account for the whole tubex. If I have not used the entire tubex by the end of my shift, I waste what is left. (R17-5)

In thread M13 (compare real nursing to textbook nursing), which developed into a discussion of practices for disposing of needles after giving injections, the first message, explaining the context and framing the issue read:

The instructor I have now is really big on getting the needle "to the box! to the box!" after an IM. The instructor before this one let us apply pressure to the site, massage it, reposition pt, and adjust siderails before disposing of the needle. ... Of course, since I am working under the instructor's license, I do whatever each one wants me to do, but my question is this: In R/L do you take care of the pt and then dispose of needle or do you put it in the box and then do pt care? (R13-3)

This resulted in a number of differing responses and practices being shown. However, the differing practices, on closer examination, also indicate the differing contexts of those practices. They show that, within the context of nursing, the "one size fits all" approach that some suggest evidence-based practice is leading towards may not be appropriate to differing individual situations and contexts. Among the differing practices, as revealed from different experiences were:

"The Box" is never far away. Put it in the box right away so you can focus your attention on the patient without "don't forget the needle, don't forget the needle...." rolling around in your head. And, of course, without risking an accident. (R13-4)

The important thing is that you dispose of the needle as soon as possible and still care for the patient ... cover the needle tip (just slide the needle in without holding the cap in your other hand), you improve your odds of not sticking yourself or others with the contaminated needle. (R13-10)

we have the new syringes that have a special little lever that pushes a cap over the used needle before you set it down safely to dispose of after the massage and bandaid.. (R13-11)

I never put the needle on the mattress. I got stuck that way once when I was cleaning up the wrappers. It only takes once to learn. So instead, the needle goes on the bedside table (away from the wrappers) until I am ready to clean up my mess. If I feel the patient needs my immediate attention, it can wait to be disposed of. (R13-12)

Must also confess in ED, we sometimes drop the IV needle on the floor until finished taping and adjusting the IV. After we are done, then remember to pick up the needles. (R13-5)

Descriptive narratives involving specific patients, rather than a general presentation of typical practice in a contributor's clinical area, are a relatively common occurrence, although not as common as the more general contributions already discussed. This type of contribution is exemplified in thread M25 (temp spikes following joint replacement), where short descriptions of specific patients are provided:

... had a friend who had a temp spike following orif of left femur... found out her pcv was low....gave her two units of packed cells...she has rosy cheeks today and is afebrile. (R25-2)

Ny mother underwent a back surgery last year, and her temperature was 102-103 for 6 days. I kept nagging the doc about it every day, (not too, much, but enough that he knew I was concerned) and he kept telling me, "yes, that'll last about 5-6 days". And like magic, in 6 days temperature was 98.8 or something!! (R25-6)

Several other threads contain examples, to varying degrees of detail, of presenting specific patients, as a contribution to the points the authors are making within the discussion:

Pt is brought into my small ER by her husband, lathatgic and nonresponsive to almost any stimuli. ... So the husband is questioned about any previous and current illnesses. ... When ask about current meds her husband stated that she was not taking any. After about 15 minutes of very intensive questioning he revealed that his wife had drank an "herbal tea" Found out that the herbal tea that she consummed, "it was a hot day in July in Florida", was about 2 1/2 quarts of foxglove. Foxglove happens to have as it's main ingredient, digitalis. This was why her heart rate was only 29. (R24-10)

I had a patient a few years ago who had a UTI. The MD prscribed the patient Methylene Blue. Niether his doctor or the dortors "nurse" explained to the patient that it

will turn the stool and esp. the urine blue. You can imagine the patients panic the first time he peed a beautiful blue-green urine. (R08-9)

The worst I have seen used to occur back in the 80s when we used methylene blue. In fact, the worst time I ever had in caring for a patient was in the 80s when we had a quadriplegic kid on a roto-rest bed with methylene blue dyed tube feeding. We didn't have butt bags then. This poor kid lost more weight the more we fed him and all the diarrhea ran into every little crack and crevice of the damn roto rest bed so that we were taking the bed apart completely and cleaning out the cracks for about an hour just about Q 4 hrs. (R08-14)

One point to note out of these examples is that, despite the differing practices that may be revealed, there is rarely disagreement as to the suitability or applicability of the practice, unless it is apparent that the practice has become routinized. There is also rarely any kind of assertion that a particular practice is wrong or dangerous. The only occasion on which it occurred within the corpus was in thread M21 (monitoring patients), where reactions by some contributors to the discussion are exemplified by:

This is absurd! Can you and the rest of your colleagues band together and stop this dangerous practice? What do the cardiologists think? I certainly could not want my family in a unit where the secretary watched monitors. Next thing, she/he will be attending the A-lines and pushing drugs. (R21-2)

As stated by the contributor, they viewed this as a dangerous practice, but this is also another example of the ways in which the role of the nurse, and the interface and interaction with other health care workers often provokes some of the more strongly-argued contributions to the discussions.

This same thread provides other similar examples, one which links to the next element to be considered, when the author shows how a reflection on the practice lead to changes:

We had this problem.....spoke to the docs and the ethics committee. So, if they want to admit a pt to ICU/CCU as a DNR, we nicely explain that this is inappropriate and they now admit them to a general floor for comfort measures. Had the nurses not spoken up, this would have never changed. (R21-2)

6.7.3 Evidence from contributors of past reflection

Examples of practices similar or different from that of the original descriptive narrative

are common within the main discussion. Less common is an overt or explicit statement by contributors that the practice they are describing is the result of previous reflection on their own practice or the practice of their colleagues. Closely related to this, although identified as a separate element in the version of the model used for the analysis, was that some contributors may provide solutions or resolutions adopted after similar experiences. These will be considered together here (and combined within the revised model), and although not especially common, a few examples of this element do exist within the corpus studied. In the first, the description of previous reflection and change of practice is not stated in as many words, but is evident from the description:

However, in the bad old days when we routinely poured stuff into the top of a plastic hanging bag, with or without the "kangaroo" ice pouch, and just kept refilling or topping off for a shift—a day—a week— from the stuff in the floor refrigerator regardless of the date it came from the kitchen, we had a lot of angry guts to deal with. We just assumed that TF's = diarrhea; imagine our pleasure to discover that simple cleanliness and attention to detail could save us so much hassle (not to mention our patients' perineal skin). There were people who were resistant to the idea, because "TF's ALWAYS mean diarrhea," but they were eventually won over. (R08-22)

In the next example, the simple use of one word, "now," indicates that some kind of reflection and change of practice has occurred:

<< However, I have always felt that if the pt was taking these they also needed to be recorded with their list of medications. >>
I agree.....and I always ask, now. (R24-3)

Other examples show more or less explicitly that some degree of reflection, under whatever driving forces, has occurred:

This particular question was raised here, too. (R17-12)

In my readings on needlestick injuries this year, I gathered that most needlestick injuries occur because of ***poor placement of the sharps collection box****. Other causes are boxes not being replaced before they are full, and poor design,... (R13-9)

6.7.4 Seeking more detail

Kim's model contained within its descriptive phase the element "Examination of description for genuineness and comprehensiveness." The pilot analysis did not indicate that this was as strong an element, or as common a concern, within these online reflective

discussions. Genuineness was assumed and never overtly challenged, and requests for more detail were rare. This element was, therefore, not featured as strongly within this model, and was certainly not seen as a pre-requisite for moving on to the later phases. However, examples do exist where more detail is requested or it is sometimes offered unsolicited by the author of the descriptive narrative. It is therefore appropriate to include it as one of the elements within this phase of the model.

Requests for explanations of terms or abbreviations used can be subsumed within this element, and generally comprise some of examples on contributors seeking more detail, such as:

What is ESRF? (R20-6)

while requests for more detail of events within the descriptive narrative are more common:

So did the RN go ahead and hang the D5 with KCL? And what was the aftermath? (R19-3)

would like to know the the pts K level was prior to blood and kcl??!!!! Mmmm sounds like a dangerous situation to me (R19-5)

Does she take them at home? If so, is it bid at home? Is it possible that (gasp) the MD made a mistake and only ordered it once a day? (R16-2)

All of the preceding elements have, implicit within them, an acceptance of the genuineness of the original descriptive narrative, even where further detail is requested. However, what has not been explicitly addressed yet is reflection by the other contributors to the main discussion on that descriptive narrative; this is the element to be addressed next.

6.7.5 Reflection on the descriptive narrative

Within the version 2 model (Figure 6.4) an element was identified described as:

May provide reflective analysis of the descriptive narrative, of the situation described, of the intent of the original poster if described – reflection may be against theory, existing practice elsewhere, best practice, etc.

While many of the other elements can be said to implicitly address aspects of this element, and there may seem to be a fine line between this element and aspects of some of the others, it is, nevertheless, important to identify it as a specific element. Examples exist where, in reference to the original descriptive narrative, other contributors to the discussion reflect against theory, their own practice, policy, and other areas, and these seem to constitute this as an identifiable separate element. The following few examples illustrate some of the areas and aspects of such reflection.

In some instances, participants in the discussion provide simple agreement or disagreement with the practice described or view expressed within the descriptive narrative. as:

I agree.....and I always ask, now. (R24-3)

I completely agree with [...].....NEVER lay the syringe down. (R13-7)

This is absurd! Can you and the rest of your colleagues band together and stop this dangerous practice? (R21-2)

On other occasions, existing theory, policy or literature, expressing a variety of views in relation to the issue, is provided to support the respondent's reflection, for example:

I saw this article the other day while exploring a website. It might be useful to you. It can be found at www.katsden.com/death/index.html under featured sites. Its titled Do Dying Patients Really Need IV Fluids. (R22-2)

There is a growing body of literature that essentially comes down on the side of avoiding medically-provided nutrition and hydration at the end of life. (R22-4)

and

Technically we learned in nursing school it should NEVER be done. But realistically, it is not totally uncommon... (R17-3)

I would suggest before giving or taking advice you check your state nurse practice act and any laws that govern. (R17-6)

6.7.6 Providing evidence

One of the most important elements of the main reflective discussion is the provision of evidence by nurses to support their own contributions to the discussion, or as material for the author of the descriptive narrative and others to consider. Evidence in the form of other nurses' practice has already been addressed, and what is specifically considered here is evidence from theory (nursing and other), from research, from the scientific literature, and from other sources. Of particular note, and which will be illustrated in the examples, is that much of the material cited is available via the Web.

Attempting to separate out nursing theory from its own supporting evidence is difficult. Several examples refer explicitly to nursing theory, and to what was taught in schools of nursing. Extracts from one of the threads (M19) will show the combination of ways in which supporting evidence is used, before a more general set of examples is identified.

Thread M19 (transfusing blood and D5W concurrently) provides examples where the views within the reflective discussion are supported from a number of sources. The thread begins with the descriptive narrative making reference to what had been taught, or assumed to be taught, in nursing schools, before making specific statements on the importance of evidence to support practice:

I am sure most of us have been taught that D5W and IV blood don't mix, more so if Potassium Chloride is added in the dextrose solution. ...

Question:

Can D5W with KCL added be administered CONCURRENTLY with blood transfusion?

Can anyone provide me with some "hard" evidence eg. a journal article, books, letter from a renowned source, etc. to say whether this is or is not an accepted practice. ...

I hope we could all help this poor nurse stand up WITH EVIDENCE to this doctor!

Afterall, nursing is moving toward evidence based practice. (N19)

Contributors to the discussion provide evidence from published paper materials (in the first instance accepting and pointing out that the material may be outdated):

Sorry I can't lay my hands on a newer peice of information...

>From "The Merck Manual," (fourteenth ed.), a very old copy (1982)... pg. 1097, Blood transfusions: transfusion technique: (noted in italics...)

"No IV solution other than isotonic saline should be allowed into the blood bag or in the same tubing with blood, since many solutions exert deleterious effects: e.g., D/W causes clumping and decreased survival of RBCs; Ringer's solution causes clotting." (R19-1)

Lippincott's Manual of Nursing Practice explains (in red ink!) that: Solutions other than 0.9% saline can cause red cell agglutination and/or hemolysis and must not be used as an IV flush or diluent. (R19-4)

Evidence is also provided from Web-based materials that contributors are aware of, or suggest how best to go about finding such materials:

...try the following links:

<http://www.springnet.com/ce/p708b.htm>

http://192.101.126.6/directives/files/6530_IG.htm (go to page 6 of 16) (R19-4)

Reference to current paper-based literature occurs within other threads, and one

contributor demonstrates the often-serendipitous nature of encountering such materials:

Guess what. Just after I signed off, I picked up my snailmail and my new issue of "RN" magazine had arrived. With an article about, you guessed it, tube feeding. They recommend not letting canned formula hang for more than 8 hours and change the set every 8 hours. One of their sources was "Gut". Now there's a publication to get you going. Their take on diarrhea was medications, enteric pathogens, or lack of fiber. (R08-5)

In other threads, while there is frequent reference to written evidence, in the minority of cases is that evidence in paper-based sources, and increasingly the citations are to material available on the Web. The following examples of this phenomenon are abbreviated from the extensive lists provided:

Found a few protocols online for tube feedings, none of them address large residuals in detail, cept to call the doc if you find one.

These give some useful background.

PATIENT PROTOCOL FOR TUBE FEEDING *Based on a leading teaching hospital's nursing procedures protocol. <http://www.oncolink.com/support/phit/checking.html>

... This is an excellent overview of nursing and nutritional assessment.

The Nurse's Role in Nutritional Assessment, by Sheelagh Tallman, RN, BSN, CCRN: "Many members of the health care team can participate in the various facets of nutritional assessment nurses, dietitians, physicians, pharmacists, and social workers. (R18-4)

Don't know Kartz but if you are looking for a tool with proven reliability and validity to assess ADL's you might want to go here: <http://www.geri.duke.edu/ltc/sos.html> (R07-1)

Browse a bit and you'll find your answer here. . . . Andrew.

Direct Patient Care on: The Nurse Friendly Enteral Tube Feedings

<http://www.lopez1.com/lopez/linksections/enteraltubefeedings.htm>

When Your Patient Needs Tube Feedings: Making The Right Decisions
<http://www.springnet.com/ce/p507as1.htm>
What is the best way to feed stroke patients with dysphagia?
<http://php.silverplatter.com/physicians/digest/abstract/abst20.htm> ... [list of further 20
urls and descriptions follow] (R15-2)

An expectation of materials being available electronically, via the Web, is growing among many nurses, especially among student nurses. Their expectations have been raised by their experiences of growing up with Web access, and through long-promised developments, such as access to online databases from clinical areas, including the National Electronic Library for Health (NeLH) in the UK.

While evidence from nurses' own practice has already been discussed, it is pertinent here to include brief mention of one other form of evidence, that of the opinion of experts in the field. The additional descriptive demonstrate a wide variety in the nurses' perceptions of their levels of expertise within the area being discussed. Sometimes they will admit to not knowing a great deal about a subject, to basing their expressed views or evidence on practice undertaken some time in the past, or to being a relative novice in the area being addressed. Sometimes, however, contributions come from nurses who are expert practitioners in the subject under discussion. Two overt examples from the threads, where contributors set out the context of their expertise in the field are:

To be honest, I had my hands in hundreds of decubs while I was consulting. Over time, I developed a pretty effective repertoire. Seems like I didn't get called in until the long term care facility was in deep trouble. ... I guess that type of situation is not unlike the situation I was in when I was consulting in LTC. (R20-4)

If I had a nickel for each and every time I've heard this line (or others similar <g>) I'd no longer have to be the Infection Control Practitioner - ... (R02-4)

Having presented various elements that may be present within the main reflective discussions, we conclude with two elements that, while not unique or special to this type of electronic discussion, do merit inclusion for completeness.

6.7.7 New threads from old

It is well known and well documented within CMC that new discussion threads will frequently arise and branch off from existing ones (e.g., Korenman and Wyatt, 1996; Yates, 1994). This has been the subject primarily of linguistically oriented analyses of CMC. Given the breadth of discussion that occurs within some of the threads that have been examined in this study, it is to be expected that this will also be the case within this CMC environment. Examination of the wider list discussions around the times of the threads chosen for the study also demonstrates this to be the case.

Another well-documented phenomenon of CMC is that of changing focus of the discussion while the subject header remains unchanged. Examples within the main corpus demonstrate this phenomenon, and both this and the previous issue demonstrate that this type of discussion is within the mainstream of this form of CMC, and so much of what has been shown in previous research would be expected to be demonstrated here.

M08 (blue food dye) provides an example of changes in the focus. Here, the subject header does change slightly, on some of the messages, part way through the discussion, to “Blue food dye & diarrhea,” although messages using both subject headers intermingle all the way through the discussion. As might be expected from the change in subject header, the discussion moves from a consideration of whether blue food dye should be used, to that of one of the common side effects of tube feeding of patients, i.e., diarrhoea (or diarrhea to use the US spelling). The discussion also moves back and forth among several other issues relating to the appropriate methods of providing tube feeds, and lengths of time they should be used before changing, all issues relevant to the whole discussion area.

Within a thread of 41 messages, we have a wide range of issues discussed and contributions made, on a range of issues relating to the naso-gastric feeding of patients, and exploring and reflecting on variations in clinical practice. The following brief extracts, presented sequentially as they appeared within the list digests, illustrates this flow of the discussion:

Does anyone else use blue food dye or methylene blue in with tube feedings per NG ... (N08)

We use blue food dye (just a little dab will do you... believe me!) in our tube feed bags. (R08-3)

What do you all think of tube feed pump set filling? My co-workers fill the bag with a can or two and have to come back and refill it in say 6 or 7 hours ... (R08-5)

I didn't think you were supposed to put more than 4 hours worth of tf in the bag... (R08-15)

I believe there have been some nursing studies that also support only hanging 8 hrs of tube feeding ... (R08-17)

I goofed in my last post. The feeding set gets changed every 24 hours, not 8 like I said. The formula is good for 8. (R08-5)

I wonder what those patients' innards look like. When you spill some of that blue stuff on you, it takes forever to get rid of it. (R08-4)

We have used blue food dye when we are trying to figure out if its feeding oozing out from around G-tube ... (R08-19)

Hey, there have been several studies published in the nursing literature (in critical care, mostly) that show that TF's with bacterial overgrowth were responsible for the diarrhea which used to be so common ... (R08-22)

A similar change of discussion focus occurs in thread M22 (hydration at the end of life), which begins with a question and request for discussion:

I put out a question about whether or not hydration should be given at the end of life. I'm really keen for some discussion on this issue ... (N22)

Discussion of views on the subject tended to a consensus that it was not recommended, exemplified by:

In her book "Dying into Freedom: A Nurse's Handbook to Conscious Dying" Susan C. Storch, RN, MA, Thanatologist has this, among other things, to say about hydration at the end of life.

"It is counterproductive to treat a dying body for dehydration. Dying physical bodies are under less strain if they are 'dry.' Many times it is this fluid overload from IVs that causes undue congestion and pulmonary edema; this brings with it unnecessary

discomfort, distress, and struggle. Giving IV fluids to an actively dying body is not an act of compassion." (R22-1)

practitioners who have experience with end of life care confirm that hydration is not beneficial...but rather may make the patient's last days/hours miserable. The literature seems to support this point as well. (R22-3)

The discussion moves to consideration of DNR (do not resuscitate) orders, and the ways in which, in the views of the contributors, they are often used and misused, while at the same time, weaving in continuing contributions on the primary subject of hydration:

I would have to look at each patient case by case. DNR doesn't mean NO CARE. (R22-5)

We have a lot of DNR patients who have emergency surgery ... Once the patient has surgery, they are no longer DNR for the postop recovery period. (R22-8)

Patients don't die in surgery, it looks bad. They try to get them at least to recovery, ... I just had a 94 y/o sepsis, responsive to only painful stim, DNR, ...They stabilized her in ICU, kept her on the floor 1 day and turfed back to the nursing facility where she died within 72 hours. Tortured while dying...and we put Kevorkian in jail? (R22-6)

These examples conclude presentation of material relating to the elements of the main reflective discussion as provided by contributors other than the authors of the original descriptive narratives. However, these original authors also make some contributions to the discussions, and the nature of this will now be addressed.

6.8 Main reflective discussion – original authors' contributions

The frequency with which the authors of the descriptive narratives contribute in total to the discussions has already been introduced. Tables 6.1 and 6.3 illustrate the relative infrequency with which they contribute to most discussion threads, and the exceptions will be discussed separately. In 14 of 21 threads (67 %), the originator of the discussion made no or only one additional contribution to the discussion, and did not contribute again to the discussion by posting a message in 8 of 21 threads. On average, the

descriptive narrative authors contributed, including these narratives, 16 % of the total messages (65 of 395 messages).

However, on occasions they did contribute, and the nature of these contributions is an important issue. Generally, they seemed to provide additions to the descriptive narrative, for comprehensiveness, or as evidence of reflection on the event/issue. On most occasions where this was the case, their contribution was as a result of direct request, although sometimes it was spontaneous.

In what might, in Kim's terms, be referred to as providing comprehensiveness to the descriptive narrative, in thread P03 (prone positioning), the original contributor (N03) provides such detail in reply to a request for clarification (from R03-2):

I wasn't sure what you meant by your reference to 45% FiO2 - did you mean that, when the patient was prone, you were able to drop the FiO2 to that level and still oxygenate adequately? (R03-2)

... yes we were able to decrease the FIO2 on the vent to 45% in the prone position while keeping the O2 sats 92-94%. Unfortunately the patient didn't have a Swan to monitor. (N03)

In thread M21 (monitoring patients), there is no overt request for clarification or comprehensiveness, but it seems that the author (N21) realises, from the nature of the discussion, that some degree of clarification is needed:

Guess I need to clarify something. We don't just throw any secretary into the monitor chair. They are very well trained, attending and having to pass an arrhythmia course ... (N21)

In seven of the threads, the authors of the descriptive narratives did make significant numbers of contributions to the discussions, and in contrast to the 16 % average of contributions seen earlier, their contributions comprised almost 36 % of the total messages in these threads. However, it is not the raw numbers that are of interest here. The threads merit separate consideration to determine whether there are issues relating to

the threads themselves or to the authors that might account for such differences. Each of the threads will be considered individually, as there are some special characteristics of each, but, as will be seen, there are some elements that are common to a number of them.

In thread P03 (prone positioning), the author of the descriptive narrative provides 3 of the total of 6 messages within the thread (50 %). One of these additional messages provided some comprehensiveness to the descriptive narrative. The other contribution was the closing message of the thread. While it does not provide what might be called closure or resolution of the issue in terms of the usual forms, it does in a perverse manner close off further potential discussion. The author (N03) indicates that they have undertaken searches for relevant information (reflection against theory and evidence), although it is unclear whether this was prior to posting the descriptive narrative, or as a result of suggestions within the online discussion:

> ... I haven't looked on the web, but you might try searching for Hill
> Rom. They make and market the Vollman proning device, so they do have
> quite a bit on why, how and when to prone ARDS patients
I did find a lot of sites on prone positioning [...] thanks ... (N03, citing R03-3)

N03 within this message restates the original issue encapsulated within the descriptive narrative, but while apparently inviting further discussion on the subject, in fact results in closing discussion:

I did find a lot of sites on prone positioning [...] thanks but nothing that answers the question about:
1. does it take a Doctors order to prone a patient or is positioning a nursing function
2. if a Doctor writes for 8 to 12 hours can you disregard the order and turn q4 to 6hrs which I feel is more realistic. (N03)

Thread P04 (restless legs syndrome) provides the example of the greatest number of contributions from the author of the descriptive narrative (12 of 33 messages). In many of the messages, interspersed throughout the thread, the author (N04) responds to messages on the list, but usually begins the message by addressing, by name, the author of each

particular message. This provides this thread with a much more interactive feel than many of the others, almost with the feel of a face-to-face discussion when read in its totality. Many of N04's contributions provide evidence from personal experience and practice, but some also make reference to theory and other sources of evidence:

Mine is the worst when I go to bed. You have no idea how many nights I have suffered.....got out of bed ... (N04)

One more thought.....I have found that eating something with carbohydrates also helps! Like a few crackers..... (N04)

I am a psych nurse, too.....yes, I know Klonopin is a very potent drug..... (N04)

This type and degree of contribution to the thread is not unusual for nurse N04, who is a long-standing member of the list, and who frequently contributes to many of the discussions on the list. This appears, in many of the threads to which they contribute, to be their normal style of contribution to online discussions, possibly developed over some period of time.

Thread M16 (nurses not following MD orders) contains 9 messages of the 21 total (43%) from the descriptive narrative author. It is another example of where the author is much more engaged in a dynamic dialogue throughout the lifetime of the thread. The messages contributed mainly provide comprehensiveness to the original descriptive narrative, as other contributors raise questions. The following set of extracts, presented in the order in which they appear within the digest, shows how this flow of question and response developed:

I had been assigned a patient who had been on my unit for 6 days and was going home the following day. She had two different eye drops ordered (one once a day and the other 4 times a day). She insisted that she got the qd drops bid (hs). I double checked the order and told her that it was only ordered qd. She insisted that she was receiving it bid and even gave me specific names of nurses that had been giving it to her at hs. My point is, rather than clarify an order with the md, it seems some nurses were just letting her have the eye drops bid. So here I come along (miss do it by the book when it comes to medicating) and I look like the b!tch that won't cooperate. ... How do you all feel about this? Have you had another nurse go against md orders only to make it more difficult to care for the patient when you have him and you won't do what other nurses have been doing? (N16)

I would not change what was ordered. Unless there is documentation to support the "bid" order I would not give it. (R16-1)

Does she take them at home? If so, is it bid at home? (R16-2)

... I am wondering what you base your opinion on? With only the patient's accusation to go on, how do you know the nurse's were indeed giving twice the amount of the qd medication? Just because the patient can give nurse's names doesn't seem to be enough. (R16-3)

There wasn't any documentation. I did confront one nurse who denied giving the extra dose ... This patient wasn't confused and named this nurse. (N16 – reply to R16-1)

She said she took them bid at home and I did believe her. (N16 – reply to R16-2)

... I did consider that the patient was manipulating, but she was so insistant. I almost called the doc even though it was late, ... (N16 – reply to R16-3)

... I find that nothing irritates patients more than not getting their eyedrops the way they are used to taking them at home. ... In response to your question—don't you have a house MD, intern or what have you that could have given a 1x order for thes eyedrop? (R16-5)

No house doctor on this particular patient. (N16 – reply to R16-5)
The first strategy that occurs to me, since I'm required to reference *everything* I tell patients, is to check the references about the standard dose/schedule for this medication ... When I worked inpatient units we always had a drug reference handy in the med room. Isn't this standard any more? (R16-6)

This thread, and the levels of interaction with it, seems to illustrate well the levels of discussion and reflection around an issue that can occur within this electronic forum, as various possibilities are explored and the practice event is examined from various angles.

Thread M23 (hydrogen peroxide use for wound care) contains only 3 messages of the 19 total (16 %) from the descriptive narrative's author. However, it merits inclusion here because it demonstrates a number of issues, not least that it seems to be a real example of online reflection around action, and of the descriptive narrative's author engaging in action contemporaneous with the discussion. While the thread does seem to be an example of online reflection around action, it is slightly different in that the "patient" in the descriptive narrative is the nurse's husband. While she is not herself involved in his direct care, she is interacting with that care through her involvement with the healthcare professionals who are, and is reflecting on the appropriateness of the care provided. As a result of that reflection, the descriptive narrative is posted to the list, and further online

reflection occurs, that the nurse then acts on, reporting back to the list discussion on the results of her actions.

The thread begins with a lengthy (400 word) description of the practice issue, which includes evidence of offline reflection, and provides an explicit request for contributions and discussion from other list members:

My problem now is that my husband is in the hospital with a strep infection from a rusty metal wire ... They I&D'd it Fri. evening and left a opening 8cm by 2cm with a depth of 5 cm. The Dr. is a plastic surgeon. His treatment for 5-7 days is to start Hydrogen peroxide rinses to the wound 3 times a day and cover it with a 4x4. No packing just cover the open wound. I spoke to the Dr. re my concern and hydrogen peroxide being cytotoxic to cells ... My bottom line is there any one out there that has done extensive research on hydrogen peroxide and use in treating wounds... Since it a more personal issue now because it is my husband I want to get some info. to back up my thoughts with this plus what are you guys seeing out there that they use to treat open wounds that aren't pressure ... I am a new nurse of two years and don't have the knowledge and experience a lot of you guys do. (N23)

The second message from this nurse, the day after the first, acknowledges the contribution of others and illustrates her own reflection against theory, scientific evidence, etc. The active engagement in contemporaneous is again illustrated, and demonstrates the use of Web-based resources:

I just wrote yesterday ... and I appreciate the responses. I got on some of the search engines for some research to help me out and, I can't just go tell this doc. something w/o some back up. I found in one article ... (N23)

The third, and final, message, posted two days after the second, contains some degree of closure and resolution, but also of action based on the results of the reflection:

The doc. came in on Mon. morning and D'cd the hydrogen peroxide. Sent him to physical Therapy (PT) for whirlpool therapy and to put silvadene in the wound with some nugas placed in the wound. ... PT and I discussed the new wound tx. and spoke with the primary who has followed the wound very close ... Anyway PT and I spoke with primary he looked at the wound told him of our concerns ... (N23)

Two other issues are illustrated in this thread, the first being private responses outside the text of the discussion thread, and the second being that of the sense of community on the list. The descriptive narrative author's second message to the thread, where she says:

I just wrote yesterday ... and I appreciate the responses. (N23)

was, in fact, only the third message appearing within the thread, indicating that some list members seemed to have sent responses by private email, rather than through the discussion list. This is a common phenomenon on this and other lists. However, unless evidence is provided into the list discussions of the content of such messages, it is not possible, within analyses such as this, to consider them. In the same way, it is not possible to consider, apart from the evidence presented in the descriptive narratives, the nature of offline reflections undertaken by the authors.

The issue of the list as a community has already been discussed, and N23's closing remarks provide further evidence for it:

Your responses helped me a lot and the websites were very helpful. This is really the first time I have done anything but read (guess you could call me a lurker) but you guys responded with such compassion and concern that you will I'm an ex-lurker. Thanks so much for ya'lls immediate response. (N23)

The final thread to be considered here, M25 (temp spikes following joint replacement), has 6 of the total 16 messages (37.5 %) provided by the descriptive narrative's author. It again shows the author interacting and responding to the contributions of other list members in the same kinds of ways as discussed above. She provides some elements of comprehensiveness to the descriptive narrative as a result of direct queries, and also some dialogue in response to suggestions put forward by the other contributors, before also providing some degree of closure and resolution of the discussion. The following brief extracts illustrate these:

In tracking patients who have undergone hip or knee replacement, has anyone noticed a high percentage of post-operative fevers? (N25)

Can be a reaction to anesthesia also or an UTI if you are cathing patients. (R25-1)

Didn't think of the anethesia reaction possibility ... we always culture preop, and we culture postop when a fever develops..... just wondering if the actual prosthesis could initiate an inflammatory response... most of these temps develop within 24-32 hours postop... (N25)

Are you seeing the spike in temperature in the afternoon? (R25-2)

Not particularly in the afternoons ... (N25)

Are the patients being turned, coughed and deepbreathed at least every 2 hours? (R25-3)

... yes, they are being TCDB Q2h + I/S Q4h.... following our pathways, they are out of bed with PT the next day..... (N25)

It's been a while since I worked ortho, but I seem to remember that the adhesive used to set the prosthesis into the bone (methyl methacrylate?) can cause an inflammatory response. Could this be the reason for the spikes? (R25-8)

... I hadn't thought of the "cement" being the cause of an inflammatory reaction.... It's definitely something OTHER than the lack of TCDB'ing ... (N25)

While each of these threads has been considered individually, and each have their particular features, some common issues arise, especially in relation to the nature and style of the responses where there is a high degree of involvement and interactivity on the part of the descriptive narratives' authors. It has already been stated that nurse N04 is a long-standing member of the list, contributing frequently to many discussions in the same kind of style.

The frequent contributors to the threads analysed are often frequent contributors to many of the other discussions on the list, and so it is perhaps not surprising that their contributions should occur frequently within this analysis. The phenomenon of a small number of active contributors providing a high proportion of the messages on lists is one that has been noted many times in the CMC literature, and is one that was noted in the earlier research on this list (Murray, 1995b, 1996). Kaye (1991, p.11) noted that "a relatively few percent of active users often account for up to 80% of message traffic." In the earlier research on the list, 30 % of the contributors provided 57 % of the messages and 2.5 % of the contributors (4 of 163) provided over 12 % of the messages. These active subscribers often provide much of the evidence, opinion and practice-based experience accounts contributed to the reflective discussions.

Having completed the consideration of the elements within the main reflective discussion, including analysis of contributions from the descriptive narratives' authors and other contributors, we move to address the final phase of the model. This covers issues around the resolution or closure of the discussion and whether evidence is presented of learning or change in practice.

6.9 Resolution or closure?

6.9.1 Introduction

Most discussion threads do not reach any formal conclusion, closure or summary, but simply finish as discussants on the list move on to new topics. However, many informal discussions conducted in the offline world also fail to achieve any conclusion, resolution or summary, even when framed, as many of the discussion threads analysed here are, with a specific request for discussion around a specific issue, topic or event.

Where online discussions are used in formal education settings, e.g., as a requirement of participation, or even a proportion of marks within online courses, a summary or resolution of the discussion need not necessarily be one of the outcomes required. However, within the context of reflection on practice, the closing of the reflective discussion has an added, equally important element, which is the use of the outcomes of the reflection in terms of actual or intended changes to practice, or learning from the discussion resulting in a changed perspective. The consideration of what in the model is termed the resolution or closure phase will be framed around these issues. While the threads analysed tend to show a lack of such resolution within the evidence of the text itself, this may be as a result of the same kind of interface of the text, the online discussion, and the offline practice, as was discussed in terms of the interface between the

offline practice event/issue and the descriptive narrative. The other important issue to consider is that, because we are seeing a different form of reflective discussion from that occurring offline, one that is more of an overt group process, one needs to consider not only the author of the descriptive narrative, but also the other participants in the discussion. If one were able to do so, it would be pertinent also to address evidence from the lurkers, those who do not actively participate, but clearly this is not possible from the text alone.

6.9.2 Is there a summary, resolution or closure?

Most of the threads examined in detail do not show a summary or resolution/closure of the discussion by the original poster or by any other participant in the discussion. The lack of such on the part of the author of the descriptive narrative is evidenced once again by the fact that in 8 of 21 threads (38 %), the descriptive narrative author made no additional contribution. In 14 of 21 threads (67 %), they made no or only one additional contribution to the discussion. The nature of these contributions has already been discussed, with many being contributions to clarifying or providing comprehensiveness to the original descriptive narrative.

However, a number of the threads do demonstrate evidence of some form of closure/resolution of the discussions, and/or show evidence of learning or learning intent, or intent to change practice. Of course, whether any change in practice did occur, it is not possible to say from the evidence of the discussion text itself. In only 7 of the 21 threads examined (33 %) was there some kind of evidence of closure/resolution, or overt assertion of learning or intention to change practice as a result of the reflective discussion. It is worth examining several of the threads individually to show the nature of the closure. While, in the model, two elements have been separated out, i.e., “usually no summary or

resolution/closure of the discussion by the original poster” and “usually no overt indication of any change effected in learning, practice etc.,” these two elements will be considered together.

Thread M19 (transfusing blood and D5W concurrently) closes with a message from the descriptive narrative’s author, their only other contribution to the discussion. The author provides a closure to the discussion through acknowledging the contributions, thanking people for them, but does not overtly indicate that, as a result of the contributions, there will be any change in practice:

I would like to thank those of you who gave me advice and help with my recent question about administering IV D5W with KCL and blood transfusion concurrently. Your support and expert advice have been helpful. (N19)

However, the practice illustrated within the descriptive narrative was not that primarily of the author or of nursing colleagues, but of other health professionals. The purpose of initiating the discussion was clearly to raise concern about the nature of the practice, and a desire to effect some change:

If evidence suggest this is not an accepted practice, then we could use it to "hit" the doctor hard on the head, ha. I hope we could all help this poor nurse stand up WITH EVIDENCE to this doctor! Afterall, nursing is moving toward evidence based practice. (N19)

The second issue arising from this thread is the way in which the author of the descriptive narrative used the discussion group for a specific purpose almost in the way that one might go to a textbook, journal article, or other form of expertise. While they had clearly been a member of the list previously, and had presumably derived sufficient benefit from it that it seemed a good source of evidence, they were not a member immediately before sending the descriptive narrative. It is clear from the opening and closing messages that they rejoined the list for a specific purpose and then left the list again once that purpose had been fulfilled:

Hi there, nice to be back posting again after such a long time. (N19 – opening first message)

I will excuse myself from NURSENET for the time being as the incoming postings are enormous. (N19 – closing last message)

This form of use of the list is rare, although a number of other threads show that people who might otherwise generally be lurkers use the list in a similar manner when they have specific and sufficiently important issues, rather than being a regular active participant. This again illustrates the sense of community and safety already discussed.

Thread M17 (wasting narcotics) also shows an example of closure of the discussion, at least from their perspective, on the part of the author of the descriptive narrative. This is their only other contribution to the thread. In this instance, there is also a clear indication of intention to effect a change in practice:

Thanks to all who responded re the Morphine syringe issue. The pharmacy is going to look into purchasing the smaller dose syringes ... (N17)

As with thread M19, although the issue has a direct impact on the work of the nurses involved (they are the ones who administer the drugs and must account for their use through written records, covered by law) the issue also involves the work of other health professionals. In this case, the other health professionals are the pharmacists who are responsible for the ordering and dispensing of the drugs used by the nurses.

Thread M20 (heel sore), in addition to the active involvement of the descriptive narrative's author already discussed, again shows an example of closure of the discussion. This closure is illustrated in two messages:

I am going to take your suggestions and feedback my results to you. (N20)

Your suggestions are taken. We are trying at our level best to protect the heel and keep it free from all kinds of friction. Thanks so much. Will keep you informed of the results (N20)

These messages indicate that some degree of learning has taken place on the part of N20, resulting in an intention to institute a change in practice. Unfortunately, no evidence could be found within the list discussion that there was any feedback of results.

Thread M25 (temp spikes following joint replacement) again provides a form of closure, with indication of intention to investigate something learned from the discussion. There is no indication that a change of practice might occur, as again one of the main determinants of the issue is another health professional. The closure does provide evidence of learning having occurred as a result of the reflective discussion that could be used as evidence to attempt to effect a change of practice and impact on the work of the nurses involved. The message providing the closure also illustrates intent to undertake further reflection through examination of appropriate evidence sources:

I hadn't thought of the "cement" being the cause of an inflammatory reaction ... I will look into the adhesive theory..... (N25)

Thread M23 (hydrogen peroxide use for wound care) provides an element of closure, although aspects of the issue being discussed are still ongoing, with the descriptive narrative author saying:

Your responses helped me a lot and the websites were very helpful. This is really the first time I have done anything but read (guess you could call me a lurker) but you guys responded with such compassion and concern that you will I'm an ex-lurker. Thanks so much for ya'lls immediate response. (N23)

The use of the evidence collected through the discussion and the change in practice has already been discussed. There is also some indication within the message of another intention of change in practice, through the indication of the author that they are now an ex-lurker and intend to be a more active participant in discussions. In most of the threads examined here that show some evidence of closure, the form of words used by the author is similar, indicating that they have obtained something of what they wanted from the

discussion. There also tends to be an indication that they will be putting the results of the discussion to some purpose.

We now turn to a brief consideration of the two final elements of this phase.

6.10 Re-use of the discussions

6.10.1 What goes around, comes around

Many issues discussed on the NURSENET list are perennial topics, occurring time and again, sometimes several times over the space of a year. There is some indication from the list that the longer-standing members of the list make use of some of these discussions when they recur, and also that, especially where they have an active interest themselves in subject area, they may save the discussion for possible later use. This form of informal archiving of the list discussions by individuals for a variety of purposes complements, or possibly contrasts with, the archiving that now occurs for a number of nursing discussion lists on the Web.

While there are few examples of these phenomena within the threads chosen for analysis, some do exist to illustrate these issues. In addition, two examples from my own use of discussions for purposes within this area will be presented.

Two messages from different people in the same thread (M22, hydration at the end of life) illustrate the reference to previous or frequent discussion of some topics, and to the re-use of materials archived by list members. The first is a simple statement that the issue has been previously addressed and then provides what seems to be a summary of previous views, with reference to evidence within the literature:

We have discussed it here more than once, I believe. There is no big argument: practitioners who have experience with end of life care confirm that hydration is not beneficial...but rather may make the patient's last days/hours miserable. The literature seems to support this point as well.....and other care givers either don't want to rock the boat...or don't know better. (R22-3)

In the second message, reference is again made to previous discussion, but the contributor then provides a lengthy (over 700 words) message from another contributor to the previous discussion that they have archived:

The last time we had this discussion I kept a few of the thoughtful posts on death and hydration. This was one of the best responses:

...
Dear Nursenetters,
For the past several weeks I have been browsing through many of your topics of discussion. Although they were all quite interesting there was one in particular that caught my eye ... The question was whether or not IV hydration is beneficial to the dying patient. After much thought on this issue I decided to look into it further so I did a little research.
It seemed to me that the benefits won in regards to the cessation of IV hydration in terminally ill patients. (R22-6)

Long-standing subscribers to the list have seen many similar examples, but in coming towards the close of this consideration of the main elements of the model, two examples from my own experience demonstrate the next stage on from archiving of the list discussions. This is the purposive use of list discussions for formal or informal education, an element that has been added to the model, but of which no examples exist within the message corpus.

6.10.2 A new educational resource

Archived list discussions, as the evidence presented in this analysis clearly shows, contain a wealth of information. They contain descriptions of practice, and variants on practice in different environment, including different countries, and they contain rationales for some of those practices. They contain sometimes-comprehensive discussions around practice issues that may lead to changes in practice. They contain many nurses' differing perspectives on issues and they contain a wealth of pointers to materials provided to

support points of view, including, increasingly, Web-based resources. They also provide an invaluable historical record of how nurses at a certain point in time viewed their practice. As such, these archives potentially provide a wealth of educational materials and opportunities which, at present, seem to be severely under-utilised. While some nurses may be making use of these materials, there is little evidence from the literature of this.

Two examples, for which I have been primarily responsible, will be briefly described here. The first example relates to a discussion on the NURSENET list of the nursing process. I was involved in developing distance learning materials on the nursing process and, because of the increasing use of information and communications technologies (ICTs) within nursing, wished to include some examples of the use of ICTs. I recalled a discussion of the nursing process that had taken place on the NURSENET list. This material was retrieved and was anonymised by date and name changes, permissions for its use sought from the original authors (and where not obtainable the messages not used), and the corpus of messages used as an item within the distance learning package (Murray, 1997b; Murray and Shakespeare, 1998). This use of materials derived from listserv discussions was one of the first, if not the first such use of materials, within a distance education context for nurses (Murray and Shakespeare, 1998). I now support even more strongly the view then expressed, that

...this transfer from online discussions to the offline world has great potential for the exploration and development of nursing knowledge and practice, and that this simple example can be further developed in a wide range of nurse education contexts, to include other innovative approaches...The way in which we have used online discussions for the exploration of nursing knowledge could provide a further model for explorations in this area, and for reflections on nursing practice. (Murray and Shakespeare, 1998)

This discussion of the nursing process was presented as part of a distance learning package, to illustrate the nature of online discussion in which nurses were engaged

through the use of ICTs. It also aimed to illustrate the format of listserv discussions for those unfamiliar with them, and to show the variety of views that exists even on an issue that is firmly within the mainstream of nursing practice.

The second example relates to discussions from a different list, within an informal educational context. In this case, a discussion was initiated on the NRSING-L (nursing informatics) listerv, with the specific purpose of capturing views of list members on the theory and practice of nursing informatics. It was stated at the outset that the discussion would be captured, and that the purpose was to create an archive that could be used for a variety of purposes, including educational. This discussion was captured, permissions to use the contributions sought from those who had posted messages and the whole made available as a series of Webpages.⁶

6.11 Using Johns' questions, or not

While Johns' questions do have some value, the pilot analysis showed that most of the questions can be used at points throughout the analysis of the discussions, and most of the questions are not limited to just one phase. Johns' questions were used in the pilot, and formed a large part of the structure of the analysis. However, while Kim's model has been adapted and contributed strongly to the development of the new model, Johns' questions have contributed less, but are not used in an explicitly recognizable form.

Some of the elements identified within each phase of the version 2 model implicitly contain aspects of Johns' questions, and a few brief examples are provided here for

⁶ This material is available at <http://www.lemmus.demon.co.uk/informatics99.htm>

illustration. Johns' question B1 (*how did I feel about this situation?*) is implicit within many of the descriptive narratives, wherein the nurses providing them explain why they think the issues is important and worthy of discussion. Question D1 (*what knowledge did or should have informed me?*) is incorporated in many of the elements of the new model. The question is not restricted to being asked by the authors of the descriptive narratives, and is more frequently addressed by other contributors to the discussions. Question C2 (*what factors made me act in an incongruent way?*) is asked, sometimes explicitly and sometimes implicitly in the descriptive narratives.

As the version 2 model was developed, my first intention was to incorporate Johns' questions within it in such a way as to show that many of them could be asked at many different stages. I felt that this was messy and repetitive, and decided not to include them in any explicit form. The model does not contain Johns' questions as they originally appear, and they have not been used in the analysis of the main corpus. This does not, however, exclude the possibility that users of the model might find Johns' questions of some benefit if used in parallel with the model.

6.12 Chapter 6 summary

The chapter began by presenting two models for reflection within nursing contexts that had been developed for offline reflection, or with no overt consideration of application to online reflective forums. These were combined into a version 1 model that was tested against a pilot corpus of discussion threads. As a result, aspects of online reflective discussion within the threads were demonstrated, including ways in which the online reflection was different from offline reflection, and the introduction of the concept of online reflection around action to describe the type of interaction and reflection

occurring. This new term was developed in preference to the use of the term reflection-in-action, which was felt to not be fully appropriate.

The version 1 model was also shown to be insufficient for describing the online reflective discussions, so a version 2 model was essentially inductively developed. The version 1 model was shown to be lacking in that aspects of Kim's three stages were shown to be occurring contemporaneously, rather than consecutively. In addition, reflection on and critique of practice was occurring from early in the online discussions, while Johns' questions seemed to be applicable at several points.

The version 2 model was used to examine a larger corpus of discussion threads. This analysis supported and reinforced the aspects of the online reflective discussions that had emerged during the pilot analysis. It showed that the online reflections were more group-oriented and action-oriented than many offline forms of reflection, and that informal discussion lists provided a vehicle wherein such reflection could occur. The differences are discussed in Chapter 7, where the results from the data analyses are used to show the extent to which the study questions have been addressed.

Chapter 7

All the various lives we lead concurrently

...reflection...is an active process of exploration and discovery which often leads to very unexpected outcomes (Boud, Keogh and Walker, 1985)

Personally, I joined NurseNet in an attempt to improve my practice. (IR02 interviewee)

7.1 The beginning of the end

Increasing numbers of nurses around the world are leading lives concurrently online and offline. They are involved in online discussions with colleagues and elements from their online discussions are having an impact on their face-to-face nursing practice in the offline world. The final chapter of this story provides a synthesis of the findings from the various parts of the data collection, as explored in detail in Chapters 5 and 6, and integrates all the elements of the study. I have structured this part of the story around addressing each of the study questions in turn, in particular relating to the analysis of the discussion threads, and showing the degree to which the data collected and analysed, and the resultant discussion, have addressed each of these questions. In considering the findings, some of the possible alternative explanations will be explored, so as to distinguish the phenomena seen in the online reflective discussions and support the argument that a different form of reflection is occurring within the online forums. Among the areas that will be explored are the possibility of the reflective discussions being simply another form of group reflection, akin to that seen in offline reflection, or of them being related to action orientated approaches to learning, such as action learning sets. The chapter will also outline the ways in which the study contributes to existing nursing knowledge and the development of future knowledge (section 7.9), and will explore some of the limitations of the study (section 7.10). In the concluding remarks (section 7.11), I will

indicate some of the ways in which I would like to see research into and the development of online reflection taken forward.

7.2 Weaving the tapestry, answering the questions

Results from my MSc research indicated that several of the NURSENET subscribers, when interviewed by email (Murray, 1995a, b), felt a sense of community on the list and that they had obtained information from colleagues which they had subsequently been able to incorporate into their practice. Some stated explicitly that their main reasons for using CMC, and in particular lists such as NURSENET, were to keep themselves in touch with the profession, and to find new, possibly more appropriate, techniques than those currently employed in their clinical areas. Their ultimate aim was to provide the best care possible for their patients. These areas, which indicated the possibility of some form of reflection upon the subscribers' nursing practice, formed some of the basis for the present study, and the evidence presented within the previous two chapters has helped to reinforce these findings, as well as develop the analysis in some areas.

In the next sections (7.3 to 7.8), a summary and discussion of the data, in particular the discussion threads, is organised, for clarity of discussion, around the study questions, although with recognition that there is some crossover between the questions.

7.3 Addressing the three core questions

7.3.1 Is there evidence of a different kind of reflection in the list discussions?

The evidence from the list discussions themselves, as matched against the reflective frameworks and models, supplemented by the views of respondents to the questionnaires

and the interviews, indicates that the answer to this question has to be an unqualified “yes.” However, the type of reflection that is occurring is, in many respects, different from the type of reflection that many nurses and nurse educators are engaged with, and are teaching and learning, in offline, face-to-face environments. It also differs from the guided use of reflection that nursing authors such as Johns (1996) suggest.

Obviously, not all of the discussions on the NURSENET list, or those sampled for the study, let alone the other exchanges on and contributions to the list, can be described as reflective discussion. It has never been my intention to suggest otherwise, and it is self-evident that many other forms of exchange occur. Evidence from the questionnaires completed by samples of list subscribers showed early examples of reflection (section 5.3 in particular), even though the questionnaires were not framed explicitly to explore this area. The interviews conducted with some of the subscribers to the list show that they also see examples of reflective discussions on the list, and provide examples of their own reflective use of materials gained through the list. The major component of the study, the analysis of the corpus of list discussions, also provides many examples of reflection.

The type of reflection that is occurring is, however, qualitatively different from that which occurs in many face-to-face, offline environments. The type of reflection that occurs on the list shares some features with reflection in the offline world, but there are important different features too.

The key differences are that reflection via the discussion list:

- is much more of a group process, a large group process, than the individual or small group process advocated by those who have used and studied reflection offline, primarily in educational settings;

- is a much more public, open process, as opposed to the private nature of much offline reflection, especially the written (reflective journals/diaries) forms practised within education and advocated for nurses in practice;
- is much more a self-initiated process, rather than the almost compelled process of reflection within formal education;
- is a more immediate process than the *post hoc* reflection presented and advocated in much of the nursing literature; as the term reflection-in-action is not fully appropriate, a new term, online reflection around action, is used to describe the phenomenon; and
- engages a wider variety of nurses, at more levels of experience and expertise, in an issue than might happen in many offline forms of reflective discussion.

The outcomes and the processes seem to provide at least the same possibilities as Platzer, Blake and Ashford (2000) note for offline reflective groups, of the learning generated through shared dialogue and collaborative exploration of issues being greater than that possible by individual reflection. The whole is much greater and richer than the sum of all the parts. One cannot deny some similarities between the support, critical thinking development, and effects on practice seen in the small offline groups studied by Platzer, Blake and Ashford (2000) and that seen in the larger mass of NURSENET. It might even lead one to suggest that the phenomena are in fact very similar, and the online reflective discussions are essentially no different. However, one important difference is the self-directed nature of the discussions on NURSENET. The topics for discussion arise out of genuine needs perceived by nurses at a point in time, and through an open, unmoderated or unfacilitated discussion process, rather than the facilitated small group forms generally seen offline. Given the paucity of research literature on offline reflective groups, there may be some benefit in future researchers directly examining, comparing and contrasting the processes within online and offline groups, so as to map what similarities and differences might exist in terms of processes and outcomes. This was not the purpose of

this particular study. Some of these issues will be explored a little further in section 7.8.2, as they are among the key findings of the study, and have implications for the development of reflection and its impact on practice.

However, one also has to ask whether this type of group phenomenon is a distinct process, or whether it is simply an online replication of some of the offline forms of group interaction. Only a small number of nursing papers discuss offline reflection in groups. Graham (1995) and Haddock (1997) both describe the use of action learning groups, based in the work of Revans (1981) on action learning, and with similarities to the action learning sets within higher education, also described by Brookfield (1987) and McGill, Segal-Horn, Bourner and Frost (1989). Action learning, and action learning sets, bring together professionals to consider practice issues and personal and professional development. However, they tend to be brought together with specific purposes, and often within an educational context, for specific goals, which may include reflection. Graham (1995) likens the model he describes to group therapy, while Haddock (1997) cautions that their use to explore practice may provoke anxiety as a result of the reflection and self-awareness generated. The online reflection around action seen within the NURSENET forum may have some common factors with this type of offline group; this could be a fruitful area for further research. However, one of the essential differences is that, in the NURSENET discussions, the participants are entirely self-selecting, working in a multiplicity of different organisations and contexts, and bring issues to the discussions that are entirely chosen by themselves and their practice situations. Rather than the educationally or managerially directed issues and purposes of the groups that seem to be implicit in some of the literature on action learning sets, the reflective discussions on the NURSENET list are much more autonomous.

Scanlon (1998), in exploring clinical supervision within nursing, one area where reflection on practice is seen to be of particular importance, identifies similar offline group discussions, based around practice, and cites the work of Balint *et al*'s (1993) 'work discussion groups' and Franks, Watts and Fabricius' (1994) 'experiential groups' as models for reflection. However, these again seem to derive from a therapeutic approach to reflection, and are organised often by agents outside the group, with specific purposes in mind. They also seem to indicate the presence of a guide or moderator to the discussions. The self-selecting nature of the participation in the online discussions within NURSENET, and the lack of direction or guidance from 'experts', are major factors suggesting that, while there may again be some commonalities, the online interactions are essentially different.

Franks, Watts and Fabricius (1994) also suggest, as have other commentators on the development of reflective skills, that specific training over a long period is needed to enable one to participate in, and conduct, reflective discussion groups. The spontaneous nature of the online discussions seem to suggest that, in the case of the nurses engaging on NURSENET, such long periods of immersion in the theory of reflection, and in the development of skills, are not necessary. However, one has to treat this suggestion with caution, as the degree of knowledge of an exposure to learning about reflection was not explored with the majority of participants, and this is a limitation of the study that may call for further exploration.

7.3.2. Online reflection mapped against offline models

A variety of models and frameworks from the nursing literature was examined, and discussed in detail in Chapter 3. None of these by themselves seemed adequate to describe the nature of the discussions and interactions occurring on the list. While all of

the models had some features in common with the list discussions (e.g., description of an initial incident or practice event that initiated the reflection or discussion), none by themselves seemed sufficient to encompass the different elements occurring through the list discussions. In particular, while much of the nursing literature advocates group processes for reflective discussions, there remains an implication that the prime benefit is to one nurse only, rather than the whole group. Some reflective frameworks are centred specifically on one-to-one discussions, and emphasise privacy and confidentiality to the processes, rather than the open sharing of the online discussion forums. Reflective discussions on NURSENET are much more group-oriented, as opposed to individual. Of particular note was that:

- many of the offline frameworks seem to imply a considerable separation in time of the reflective discussions from the events (i.e., reflection-on-practice at a time separation from the events), while the list discussions were much closer to the events, and even, in some cases, were discussing ongoing events (examples of online reflection around action); and
- some of the offline models implied either reflection being undertaken solely by the person reflecting, or in a one-to-one or small group relationship; the list discussions often involve a larger group of active participants, and an even larger group of lurkers.

While the type of reflective discussion occurring on the list has some features in common with offline models and frameworks, and may be in part be explained simply by one or more of the theories of group dynamics, these did not seem sufficient and a new model was developed. This model was derived from two existing ones in the first instance, and attempted to more closely reflect the reality of informal online reflective discussions.

7.3.3. Developing a model for online reflective discussions

As none of the models and frameworks for reflection within the nursing literature on their

own seemed to match what appeared to be occurring within the list discussions, an eclectic model was developed from a combination of the work of Kim and Johns.

This (version 1) model had some usefulness when the pilot selection of threads was tested against it. The presence of the descriptive narratives (first messages posted to the discussion) were congruent with the model, but within the list there seemed little examination for Kim's (1999) concerns with genuineness or comprehensiveness of the narrative (which was generally implicitly accepted).

Aspects of the reflective phase were present in the list discussions, but the specific questions used within the model seemed constraining. There was also evidence of critique of practice and (potential) change processes. However, contrary to the implicitly linear version of the model, and the separation of the three phases, many of the descriptive narratives contained evidence of reflection and explicit or implicit critique of practice. The phases, therefore, seemed to be occurring concurrently, or showing evidence of offline reflection and critique prior to the posting to the list of the descriptive narratives.

As a result of the pilot analysis, the version 2 of the model was developed, and this was tested against the main corpus of discussion threads. This model, as demonstrated in the data presented (in sections 6.6 to 6.11), seemed better matched to the nature of the list discussions. While containing elements of theoretical background, it was mainly directly derived, in an inductive manner, from the ways in which participants engaged, in real life, in the discussions. Many of the main corpus threads analysed demonstrated the presence of most or all of the elements from the version 2 model.

The version 2 model itself, however, and attempts to portray its dynamic nature in the

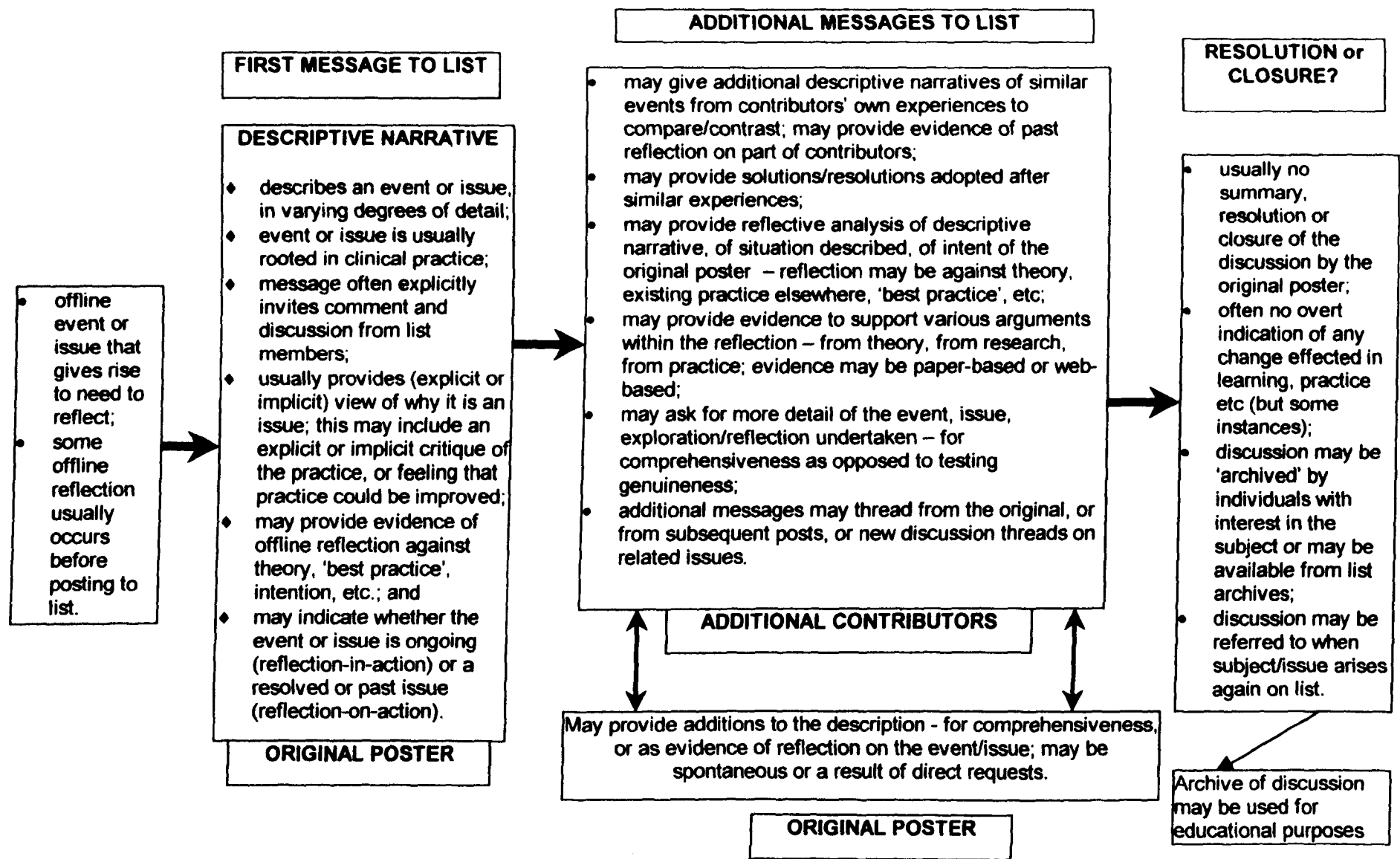
two-dimensional medium of paper, have not been without their problems. As a result of the analysis of the main corpus of threads against the version 2 model, it emerged that the ordering, wording and emphasis of some of the questions and statements used within the model were in need of modification. A version 3 model (Figures 7.1 and 7.2) has been developed. I intend that this model will form the basis for future research on both the NURSENET list and a number of other lists, to further test the model in other discussion forums, and as a way of seeking to address some of the issues and possible limitations raised within this chapter.

The new model that I had to develop, together with the qualitatively different form of reflection found in this informal online forum, illustrate the problems inherent in a view that assumes, as seems to be happening all too much in the development of online education, that we can automatically transfer offline models/theories into the online world. The models and the theories must be tested, either before translation into online environments, or through evaluative and other action-oriented studies, during and after that translation, as new and unexpected results may arise.

One of the issues I raised in relation to Kim's (1999) framework was that it appeared to portray too linear a process. Taking Figure 7.1 in isolation, it might appear that I am myself doing exactly the same. It is for this reason that Figure 7.2 has been developed, and Figure 7.1 should be considered in conjunction with Figure 7.2. Figure 7.2 is an attempt to portray, as much as a two-dimensional representation can, the dynamic nature of the processes within the model version 3. Within Figure 7.2:

- the dashed line between the offline and online components indicates that the two are not separate, but that many of the nurses involved in these discussions increasingly combine, and live within, the two;

Figure 7.1 Diagram of Murray's model of online reflection in informal discussion forums – version 3



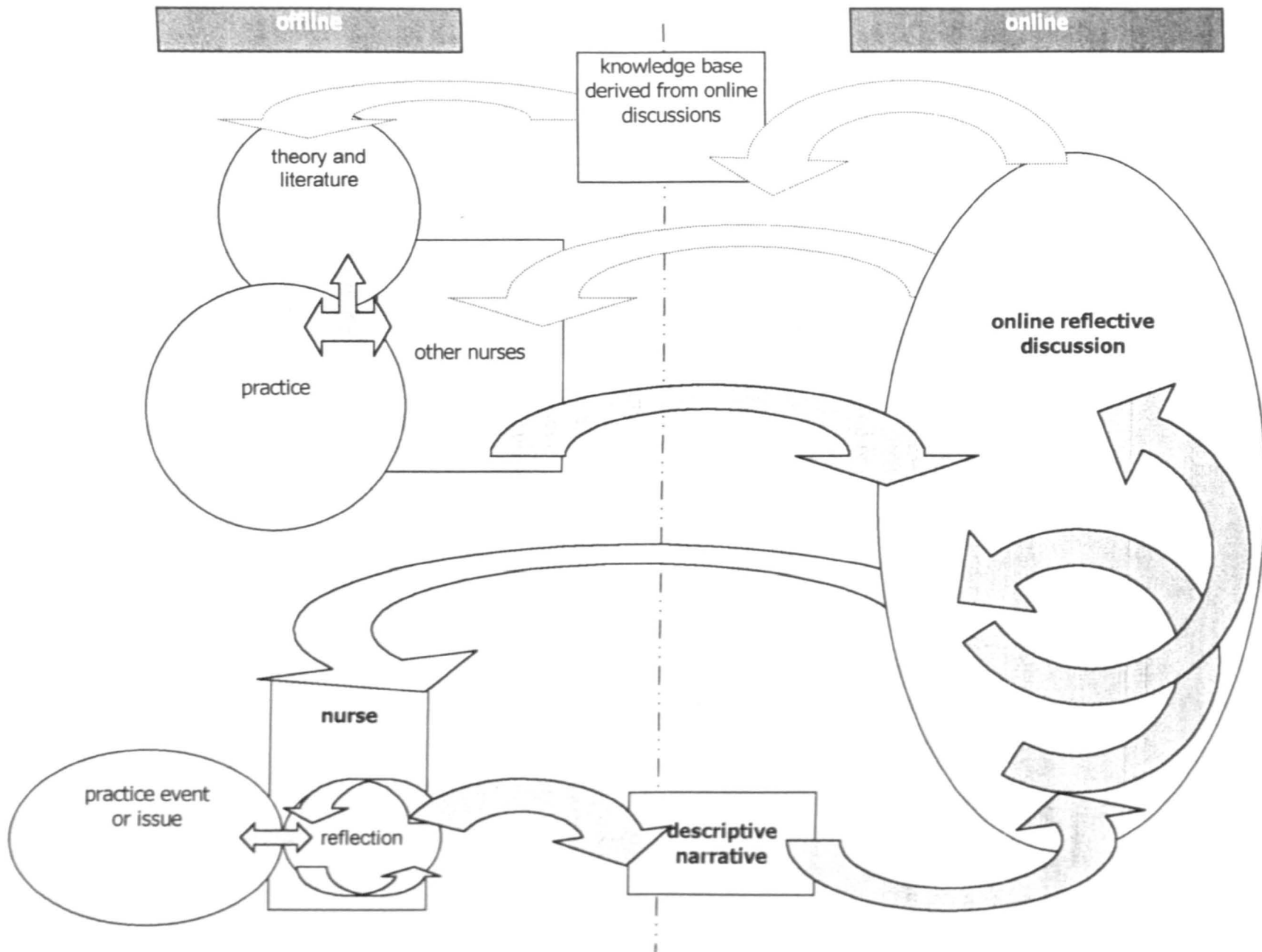


Figure 7.2 The dynamic nature of online reflective discussions as described in the Murray model.

- the issue or event is shown as feeding into offline reflection by the first nurse (descriptive narrative author);
- the descriptive narrative is deliberately placed to show its offline origins, but its situation mainly within the online component;
- the list discussions are shown to have a spiral component, with discussions building on and taking account of prior input;
- the knowledge base potentially generated from the list discussions is again shown as being available both online and offline, and with the potential to feed directly into theory/literature or practice, or via the mediation of members of the discussion; and
- the potential impact of the discussions, in terms of changed practice, is shown for the author of the descriptive narrative and other members of the discussion.

Having completed discussion of the three core questions, in the next section I turn to consideration of some of the associated questions addressed within the study.

7.4 Communities and safe discussion areas

7.4.1 Does an electronic discussion forum constitute a community ?

Many definitions of community exist, and several have been examined in Chapter 2 to demonstrate that most CMC researchers seem to be moving towards accepting, if they do not already accept, that CMC groups can form communities. Taking just two descriptions developed by researchers who have examined online communities, Schrum (1995) says that communities must be broadly defined, that affiliations between individuals reflect interaction, intimacy, and the possibility of shared memory through electronic networking. Etzioni and Etzioni (1999) say that relationships and bonding exist, with shared commitments, values, meanings and mores, as well as a culture and shared historical identity.

Taking these descriptions, the evidence from the data used within this study clearly points to the NURSENET list being a community. It demonstrates, from Schrum's description, frequent interaction among members through the daily discussions, shared memories (many members provide examples from previous discussions to contribute to ongoing discussions), and the degree to which often very personal thoughts and feelings are shared demonstrates a remarkable degree of intimacy at times. The list demonstrates, using Etzioni and Etzioni's views, shared values (which may be the same as the shared values of many other nurses offline) and a shared historical identity, through the length of time, over six years, that the community has existed.

The findings also have congruence with those of Sharpe and Bailey (1999). Although they were examining reflective writing in the context of a formal education course, they describe evidence of reflection on practice, and of social support within the group.

The type of community formed by the list also seems to be congruent with Lave's (1991) concept of "communities of practice." This is described as a

...decentred view of the locus and meaning of learning, in which learning is recognized as a social phenomenon constituted in the experienced, lived-in world, through legitimate peripheral participation in ongoing social practice; the process of changing knowledgeable skill is subsumed in processes of changing identity in and through membership in a community of practitioners; and mastery is an organizational, relational characteristic of communities of practice. (p.64)

7.4.2 A safe environment to discuss practice issues and reflect?

There is undoubted evidence of this, although the issue has not been examined in great detail within the main body of the study, but has been addressed briefly, for example in section 6.6.2. The degree of detail that list members feel able to share, and the amount of personal detail about themselves and/or their patients that they share shows that they do feel it a safe environment within which to discuss these issues. In addition, one

occasionally finds examples where list members have themselves said explicitly that they feel the list constitutes such an environment, that they value the support they receive from the list. Similar support mechanisms are described in the limited work on offline group reflection discussed earlier.

The list, for all its size and level of activity, has shown little animosity towards members within the reflective discussions. There have been arguments, disagreements, even flame wars on some issues - but in the discussions of practice issues, list members tend to respect the views and opinions of others, and where they disagree do so in a generally constructive manner.

While this issue is only a small component of this study, it is an important issue, especially if more nurses are going to use such informal discussion environments. The degrees of disclosure, intimacy, and support demonstrated are similar to those seen in patient-lead online support groups, such as those discussed in chapter 2, and these are issues that would benefit from further study in both of these types of environments.

7.5 The list members' views on reflection

List members who were interviewed about various aspects of the study were divided in their opinions as to whether the list discussions showed evidence of reflection. A few tended to the view that they did not, but most stated, in very positive terms, that in their experience, often as long-standing list members, that there was definite evidence of reflection within the discussions. There is some evidence that they concur with the view that there are examples of changing practice as a result of the discussions.

7.6 It's reflection, but as Kemmis sees it?

Kemmis is not the only author to suggest that true reflection must be related to action, and cannot be a solely passive process. However, while some nursing authors provide similar views, advocating a critical stance to the practice of reflection, there is little in the nursing literature to outline the forms of this action. Taking Kemmis' seven points in turn:

1. Reflection is not a purely "internal" process; it is action-oriented and historically embedded.

The reflection demonstrated in the list discussions is not purely internal. It is an external, group process, consisting of interactions between individuals (potentially large numbers of individuals). The reflection takes the form of group discussion and interaction, and that is itself open to the external scrutiny of many others. The fact that there is some evidence of changes in practice due to the discussions shows that the reflection occurring on the list is action-oriented. By "historically embedded", Kemmis (1985, p.143) is referring to the context within which the reflection is occurring, what he terms a "historical field of action." The view that reflection must be considered contextually is part of the overall framework for this study, and congruent with Kemmis' views. The reflection studied here is that occurring at a particular moment in time, and within a particular virtual space, and as such can only be, and has been, considered in terms of this historical field of action.

2. Reflection is not a purely individual process; like language, it is a social process.

Clearly the discussions on the list are not an individual process; they constitute a group process that can potentially involve hundreds of people. Even the descriptive narratives, posted to the list by individuals, sometimes show evidence that they themselves have been created as part of a social process, through groups of nurses examining or seeking to

examine aspects of their everyday practice. The processes are social, as group interactions of this sort are of necessity social interactions.

3. Reflection serves human interests; it is a political process.

The reflection shown in the list discussions does serve the human interests of those involved. The nurses posing the issues and questions to the list have an interest in discussing the practice they encounter, and, explicitly or implicitly, in changing it. The interests of other participants in the discussion, and lurkers reading the discussions, are served, and the interest of the patients and clients are served by the potential outcomes of the discussions in terms of improved practice.

Kemmis' view is worth quoting here at length, as it clearly encapsulates the nature of some of the reflective discussions on the list. He says that:

...reflection is a political process in which we locate ourselves more or less explicitly as agents in the historical struggle against irrationality, injustice and unfulfilment, denies that reflection is quiet contemplation primarily of significance to the individual...self-reflection, undertaken in collaboration with others, is part of the political process by which we may transform irrational, unjust and unfulfilling social structures. Kemmis (1985, pp.146-7)

The frequency with which issues of irrational actions and questionable practice are raised on the list clearly demonstrates that many of the nurses involved in the discussions implicitly feel that, through the list, these areas can be at least raised. Such practices as discussed are not confined to those of nurses, but include injustices caused by the actions of other health professionals, especially doctors, and nurses' lack of fulfilment in the limited scope of their practice.

4. Reflection is shaped by ideology; in turn, it shapes ideology.

Nursing ideology, or the various nursing ideologies, shapes the reflection encountered

through the list discussions. Differing ideologies are often manifest within the discussions, and the results of the discussions potentially can influence the future development of nursing ideologies as well as shaping future practice.

Kemmis (1985, p.148), in addressing this point in detail, sees that, through reflection, there exists the possibility of

...choice about whether to think and act in conformity with the patterns of communication, decision-making and action in our society ...

or whether, through reflective action, to attempt change. In the NURSENET discussions examined, and in many other examples I have encountered through my long involvement with the list, it is clear that many of the nurses involved are choosing to attempt to change and improve their own practice and that of others.

5. Reflection is a practice which expresses our power to reconstitute social life by the way we participate in communication, decision-making and social action.

The nature of the reflective discussions on the list, and the potential to change the actions of individual nurses as a result shows that the type of reflection occurring meets this point. There is no coercion within the discussions, the communication is free and open.

6. Research methods which fail to take into account these aspects of reflection are, at best, limited and, at worst, mistaken; to improve reflection, the study of reflection must explore the double dialectic of thought and action, the individual and society.

The research methods used within this study have sought to explore the thoughts of the individuals involved, as expressed through their messages to the list, and their actions, as expressed in their desire to explore and possibly change practice. The study has explored

the reflection of individuals as well as the group processes that have occurred within the discussions.

7. A research programme for the improvement of reflection must be conducted through self-reflection; it must engage specific individuals and groups in ideology-critique and participatory, collaborative and emancipatory action research.

This study did not set out to improve reflection; it sought to explore a particular context for evidence of reflection, a particular historical field of action within which reflection seemed to be occurring. As such, it is only one contribution to the debate on reflection and on the methods that might be best suited to the study of reflection. However, the self-reflection that has occurred for myself as the researcher, for those who have participated in the data collection, and, potentially, for the readers of this story, are congruent with Kemmis' approach.

In summary, therefore, I would contend that the reflective discussions on the list, and this research into it, do meet Kemmis' seven points. As I have not, within the literature, encountered any other examples where nurses have examined Kemmis' points in such detail, nor within the context of research into reflective practice, this discussion can provide the first step for further examination of the issues.

7.7 It may be reflection, but does it change practice?

There is only limited evidence of this provided in the list discussions. There is, as has been discussed in section 6.10, a lack of overt resolution/closure to many of the discussions threads. The nurses posing the original questions, or descriptive narratives, rarely come

back to the list and say, for example, “thank you, I have learned this from the discussions, I am going to change my practice as a result in these ways.”

However, some examples do exist. Participants in the questionnaires and interviews also provided additional evidence and examples of changing their practice as a result reflecting on things they have learned from the list discussions.

Evidence does then exist, albeit limited, for changes in practice occurring as a result of online discussion in informal discussion environments. Nevertheless, this evidence is of great importance due to the relative lack of evidence that exists elsewhere, according to the literature. It demonstrates that at least some forms of reflection, in some forums can result in changes in nursing practice. This is a great step forward in the debate on nursing and reflection.

Andrews, Gidman and Humphreys’ (1998) question, of whether there existed any evidence for reflection resulting in practice development or improvements in patient care or outcomes, was raised. This is one of the key issues for the moment within nursing’s debate on reflection, as well as other practice issues. The fact that online reflection of the type examined in this study can provide some of the evidence lacking for the effectiveness of offline forms of reflection raises many important questions that merit further, and relatively urgent, consideration and study.

One obvious criticism of the self-reported learning and changes to practice from list members is that there is no evidence from outside their own reports, from outside the texts provided. Within the context of the study, these texts, in discussion contributions and in the questionnaire and interviews, are the only evidence we have. However, self-

report is also the only evidence we have from examples of offline reflection. We trust that, when a nurse who has reflected on an issue states that they will, intend to, or have taken action resulting in changes to practice that they are being truthful. No studies have attempted to measure and or demonstrate changes through the observation or quantification of practice. Thus, if such criticisms are to be levelled, they apply not only to the type of reflection demonstrated in this study, but to all forms.

7.8 Do informal electronic discussion forums, such as listserv discussions, provide an environment within which nurses can reflect on their practice?

7.8.1 Has the question been answered?

This was the overarching question for the research, within which all the preceding questions were framed. I believe that this study demonstrates that this type of informal electronic discussion forum can and does provide an environment within which nurses can reflect on their practice. It provides a qualitatively different form of reflection from that encountered in many offline situations. This different form of reflection is more action-oriented than many offline forms, and is often explicitly associated with a desire or intention to change, and improve, nursing practice or the overall healthcare practice of the clinical situation within which the nurse is engaged. The reflection on the list is more immediate, interactional, a more socially-oriented form of reflection, and has the potential to impact on the practice of many more nurses than other offline forms of reflection.

This study has looked at one discussion list, and has taken primarily one data set from one point in time, albeit a year-long point. This, it could be argued, is a limitation of the study, a point to which I will return shortly. Whether the findings would apply to other lists is a subject for further research. Having said that, within the philosophical framework of the

study, I am not necessarily suggesting that the findings can be assumed to have wider applicability, although some evidence from the participants suggests that similar things are happening in other informal nursing list discussions

7.8.2 A different type of reflection

In section 7.3.1, I summarised some of the ways in which the form of reflection seen within the list discussions was different from the forms seen in offline reflective environments, and reported within the nursing literature. This is one of the key findings of the study, together with the finding that, as a result of this different type of reflection, evidence of changes to nursing practice could be provided.

Much of the nursing literature implies, where it does not state explicitly, that reflection is, and should be, a relatively private affair, undertaken individually or in a small group situation for the purposes of feeling safe and comfortable. It is also usually undertaken at a time, and space, removed from the events being examined. There is, admittedly, much rhetoric around the possibility that, once the necessary skills are developed through reflection-on-action, in a controlled environment, the nurse will then be able to implement this within her practice, and engage in reflection-in-action. There is, however, as Andrews, Gidman and Humphreys (1998) and others note, no real evidence of this occurring. There is also, in much of the nursing literature on reflection deriving from its development within educational contexts, a strong view that the skills of reflection must be taught if nurses are to develop them “properly.” Wood (1998), in a review of the UK and US literature on continuing professional education, also concluded that it was difficult to show any conclusive effect on improvements in patient care from formal continuing professional education courses.

The type of reflection seen within the NURSENET list, through this study, seems to indicate a qualitatively very different form, or forms (whether there is only one form of reflection evidenced within the discussions has not been examined), in comparison with the forms described within the nursing literature. It also is congruent with the action-oriented reflection advocated by Kemmis (1985).

7.9 How do the findings contribute to nursing knowledge?

7.9.1 Something old, something new ...

As I embarked on this study, even before the journey through the swampy lowlands to reach this point, it had always been my intention that it would serve two purposes. It was not my intention to simply undertake a study in isolation that would be of only academic interest to a small readership. I wished to provide something that could be given back to the nursing community, especially to the online community of nurses in forums such as NURSENET, and that would be of benefit in the development of nursing knowledge and practice. The responses I have received, from participants in the study and from others with whom I have discussed the work, have indicated that many of them believe the work will, at least potentially, benefit nurses and nursing practice. It is my intention that the whole of this story will be made available to the rest of the audience. This may also, through feedback from a range of readers, including subscribers to the list, provide additional validation to the findings of the study, and of the model developed. Therefore, in the same way that my MSc dissertation was made available freely on the Web, so this thesis will also be placed on the Web.

It is for the larger part of that readership, then, that the following summarises what I see as the main areas in which this story, and the work that has contributed to it, has

contributed, or might contribute, to the development of nursing knowledge and nursing practice. Many of the aspects within the story are not new, or original, although the ways in which some aspects have been applied from outside the nursing domain to nursing can justly be argued to be new approaches. What the story has done, through the development of the version 2 Murray model, is to provide a better way of accounting for the reality of online reflective discussions than is provided by any single model developed to describe offline reflection. It has taken the ideas of reflection, as practised and developed within nursing, and through the use of a different data set, shown how those ideas have been adapted within the online world. This examination of online discussions has reinterpreted reflection for the online world of nursing.

The development of the new model is not necessarily intended to be generalizable. There is, though, some evidence from the data collected, where participants have indicated that they see similar processes in other discussion lists, which indicates that it might be shown to have generalizability if detailed research on other lists supports these views.

I also believe the use of the term Virtual Focus Group to have been new to nursing when I first used it. I did not find in the literature, and have come across few references to its use in the 3 years or more since I first published my use of the technique (Murray, 1997a, c). I will not claim that the technique, of taking the concept of the focus group, a well-established research method in the offline world, and attempting to use it in electronic form is necessarily new. There existed limited evidence from the literature that others had attempted similar methods, although I could find no evidence of it having been undertaken within nursing. The conduct of the groups was not as successful as I had hoped, although the data produced was very rich and only a small part has been used within this story. The method, and variants on it, is one that I believe to be of great

potential as a research technique for the future, and I hope that many others, especially nurses, will explore the technique further and refine its use. Indeed, as I write this, I have just received an email from a US nurse researcher inviting me to participate in her research, using Virtual Focus Groups.

In two final respects, this story has new elements to it. While there have been a number of longitudinal studies of listserv discussions, for example the ProjectH work, I could not find reports in the literature of a study on a nursing or other list that had collected data from a period of more than six years. The research did not primarily aim to be a longitudinal study, although aspects of how nurses' use of the list had changed over time were touched on. Aspects of this study may provide a starting point for other longitudinal studies of a variety of aspects of list discussions. The other aspect of newness to this story is that it seems to be one of the first nursing studies to attempt any detailed examination of Kemmis' work. Both of these areas are, I believe, ripe for further work.

7.9.2 Not in isolation

As has already been indicated, there are few examples from the nursing literature that cover the main areas of this study, the only major study of some similarity being that of Andrusyszyn (1996), who studied such online reflection within the context of formal educational courses. There are, however, other examples from the recent nursing literature, relating to both online and offline reflection, where the work of other nurses is showing evidence that supports some of the findings from this study, or where nurses have come to similar conclusions.

McCartney (1998a) provides two short examples of what she sees as the influence on practice of list discussions. Although she does not anywhere use the word 'reflection', it

is evident from her description and interpretation that what is happening fits the model developed and is closely congruent with many of the examples I have used in my analysis. In the first example, a nurse expressed concern on the Perinatal list about local practices in the administration of epidural drugs during labour, and that these might adversely affect patient safety. McCartney shows that the nurse had already engaged in some form of offline reflection as she has “already reviewed her institution’s policy, the position of the State Board...” and other policies, from which she decided there was a practice issue due to conflict of local practice with policy. As McCartney (1998a) states, the nurse “posted the list for help, asking members about practice in their settings,” an example of a descriptive narrative, with several of the elements identified in my model.

McCartney (1998a) goes on to describe the ways in which list members responded, drawing on their own practice and research and literature sources and expertise (all elements identified in the main discussion phase of the model). As McCartney describes, the list members provided “Web addresses and mail addresses for professional organizations...as well as pharmacology, physiology, or research citations...[and] List members with expertise in epidural procedures...[provided] yet additional content experts.”

The report concludes by showing closure through changes in practice and how, after petitioning the State Board of Nursing, the practice was changed, and so the nurse, through the “use of the discussion list’s resources and her own persistence and perseverance made all the difference in protecting safe nursing practice...” I would argue that, although not explicitly state, this example provides, albeit on a different list, another example of online reflection around action, as per the model I have developed.

In another paper, describing some of the advantages of discussion lists, McCartney (1998b) also illustrates how many elements of the discussion lists with which she has direct involvement contain elements that are congruent with my model of reflective discussions. She describes how

Discussions are not without attention to national standards or evidence-based practice...numerous research citations...

She concludes that many list discussion include thoughtful critiques, including consideration of the meanings of discussions for practice and the strengths and weaknesses of some of the materials cited in the discussion threads. McCartney (1999) also notes, congruent with my findings from this study, that

Information is referenced with research and professional guidelines. Correct citation format is demonstrated. Members' contributions are based on clinical knowledge, skills, and experienced insight. The most current practice is discussed. (p.39)

In the same way that many of the contributions to the list discussions draw on the contributing nurses' own practice, Smith (1998) studied undergraduate student nurses' use of reflecting about practice, using written critical incidents and classroom discussion. She found that many of the students "use their own and each others' experiences to examine meaning, in preference to formal theoretical explanations." (p.891) In addition, she says, there exists

...some evidence that reflection involves the integration of practice experience and academic knowledge and that there is a reassessment of old perspectives so that some views and ideas may be rejected, whilst others are retained. (p.897)

This has implications for the debates within not only nursing but healthcare more generally, and which it has been possibly only to touch on in this study, of evidence-based practice.

7.10 Limitations of the study

The researcher ought to be able to identify limitations in any piece of research. However, discussion of such limitations should be framed within the context of the study, rather than try to consider all the theoretically possible limitations that may exist and criticisms that might be made, particularly from readers and researchers who come from a domain outside of the qualitative and naturalistic research context of this study. In respect of this research, this means that its limitations as a piece of qualitative research, particularly the ethnographic aspects of the study, and the development and use of the model and of the concept of online reflection around actions, should be the main focus.

One possible limitation of the study is the small sample sizes used in the questionnaires and interviews, and so it might be argued that the results may not necessarily be common to the vast majority of subscribers who did not respond. Such low sample rates are common to much qualitative research, and are a common and well-documented feature of research into CMC throughout the history of CMC research. However, taken together, and with the partial validation of the later interviewees, and of the study having been read by the listowner and presented publicly, with no major disagreement with the interpretations, I believe that the interpretations made from these small samples have validity.

Another limitation is that the interpretations made from the analysis of the discussion threads, mapped against the models, were not specifically presented back to the originators of the descriptive narratives. While it is true that none of the originators of the descriptive narratives, or the contributors to the discussions, were specifically asked to comment on the findings, in fact some of the subscribers who made up the cohort of

interviewees on reflection (section 5.6) were contributors to these discussions. Their lack of disagreement provides some validation of the findings. One additional counter to the assertion that this might be a limitation is that, as with any research, the phenomenon studied by the researcher may not be recognised by the researched; because I have identified reflection, does not necessarily mean that the contributors to the discussion necessarily recognised what they were doing as such, or as an objective. In future research, however, using such presentation back to the originators may be a useful additional form of validation, and its use should be explored.

The obvious potential limitation, that can be levelled especially from outwith the qualitative paradigm, is that the study only examined one discussion forum, and as such, the results may not be generalizable to other forums. As has been reiterated time and again, it was never the intention that such generalizability should be sought, and the intent of the study was to examine one discussion forum, and to seek to explain some of the phenomena occurring within it. Now that this has been done, the model developed, and the methods used, might usefully be applied in researching other similar discussion forums. To attempt to generalize the model to these forums is another, separate, piece of research.

Atkinson (1992) states, of any piece of ethnographic research, that “one is always aware that the written products only represent possible versions” (p. 452) and that there exist, as alternatives, a

dazzlingly large variety of ways in which the material could be organized, numerous perspectives that could be adopted, and a multiplicity of stories that could be told. (p.452)

The study used, as described in Chapters 4 and 5, a triangulation of data collected via a mixture of methods (Cohen & Manion, 1994; Denzin, 1970). Obviously, even within the data selected, they could be been combined, or analysed, in different ways, or different amounts of data, for example, more interviews with list participants, might have been conducted. However, the approach that was used was the one that ‘seemed right at the time’; it still, several months later, seems right.

Whether other forms of triangulation, either of the data selected, or of additional data, might have produced different results is always a matter for speculation. The email interviews conducted with list participants, as a form of validation of the early results, and discussions with colleagues since, as a result of presenting the results at conferences, suggest that the results are credible, and are a reasonable explanation of the phenomena seen in the discussions. It is my intention, in addressing the validity of the results found and explanations derived, and to try and address to my own satisfaction some of the possible limitations identified, to test the model with other data sets. These datasets will be derived from other nursing online discussion forums, and the results will be presented to a larger group of list participants for validation. While I do not wish to prejudge the outcomes, the limited feedback reported earlier in this study, from participants who are members of other lists, indicates that they see similar phenomena there, and so that the model does, in fact, have wider applicability than just within this one forum.

Cohen and Manion (1994) also see triangulation as having special relevance in the study of complex phenomena that require exploration, and that one of the main problems confronting researcher staking such an approach is often that of validity. They go on to say that validation in such studies is usually achieved through others, in particular the data subjects or participants, recognising the authenticity of the research report. These issues

have been explored in depth in Chapter 4, and it suffices here to say that such presentation of the research findings back to participants and others as has so far been undertaken (including to experienced list members) has validated the findings to a degree. One limitation of the study is that more list participants were not used to validate the findings, but one can only use as many participants as indicate their willingness to provide feedback. Future research and presentations of the current findings may provide additional validation data.

Denzin's (1970) work on triangulation provides a number of additional ways in which forms of triangulation might have been incorporated into this study. The data that currently exist from the study, and other materials readily accessible, might be used by myself or other researchers to provide different views of the phenomena explored. Denzin (1970) describes time triangulation, which takes account of changes and other processes over time, through the use of longitudinal or cross-sectional studies. The use of some of the data from this list, which has been collected over a six year period, might provide an analysis of changes in the use of the list, especially in terms of the type and degree of reflection. This would have to be supplemented, through with additional materials, and may need a prospective element, as recollection of reflective processes may be filtered through the lens of further reconsideration, as discussed by Kim (1999).

Space triangulation, as described by Denzin (1970) attempts to overcome the problems associated with studies undertaken in one country or sub-culture through the use of cross-cultural techniques. This study has already addressed this issue to some degree, by the very nature of the international group of nurses involved in the list. However, the data could be further explored for cultural differences between nurses in different countries, or in different clinical specialisations, especially in terms of their understanding of the nature

of reflective practice, and its application within their own countries. Theoretical triangulation, wherein other philosophical or theoretical frameworks are adopted, investigator triangulation, through a form of inter-rater reliability testing of the use of the model to analyse the discussions, or other forms of methodological triangulation might also be applied to the data collected in this study. I have plans in hand to explore some of these possibilities, in particular the application of the same methods of data collection and analysis to other online nursing discussion forums.

7.11 Concluding remarks

It would be wrong not to acknowledge that there are many issues to be resolved before the majority of nurses, even in the developed world, engage in CMC as routinely as they do other forms of communication. Access to networked communications is a necessity to allow nurses to engage in CMC, and in many parts of the world this is not a priority. Many nurses, even in the affluent developed world cannot afford the hardware, software, connection fees and telephone charges, much less geographically isolated nurses in developing countries, who may, perversely, be most in need of the forms of communication such facilities can offer.

There are additional issues around CMC literacy to be considered. Even for nurses generally computer-literate, there is a need to develop the skills of communicating through CMC. As Perkins and Newman (1996) point out, using the term e-discourse in preference to CMC, it

...can be viewed as a new way of writing and especially a new way of reading...
[It] is more than a way of organizing, transmitting and interpreting words. E-discourse is also a new way of mediating new forms of social relationships...
[with] an appearance of candor, the allowance of considerable ambiguity, new ways in which time becomes a significant factor in communication...

Whether the type of reflection occurring online might feed back into the development of offline reflection is another area that might merit research, as is the question of whether the type of reflection demonstrated can be taught and might impact the future development of discussion lists.

My initial thoughts, in embarking on this study, were that, if there were to be evidence of reflection within listserv discussions, it would be more likely to be found within the general, wide-ranging discussion areas, such as NURSENET. While the study does show evidence of reflection occurring, and of a qualitatively different form of reflection, communication from some of the participants in the study suggests that more reflection may actually occur in the focused, specialist lists. Within these forums, a more focused community of practitioners is discussing a narrower set of issues relating to their own practice, and where they are more likely to find experts in their particular field of practice and interest. This is an area that needs to be examined in further research, perhaps using my version 2 model.

This study has addressed certain aspects of reflection within online discussions. It has been approached in a certain way. There are many other ways it could have been approached and many other aspects that could have been addressed in greater detail, other avenues that could have been explored. However, what I have done, and what I have presented, seems to me to have been right at this time.

Koch and Harrington (1998) conclude their examination of the issue of rigour in qualitative research by saying that:

...the research project is plausible when the work is engaging, and has an internal logic achieved by detailing each interpretative, reflective turn...This means generating data with the awareness that this process operates in a world of

existing alternative representations serving to shape the research product with social, political and critical insight. The final research project resembles a thoughtfully constructed tapestry. Its appreciation will rely upon each needle point and the craft of its makers. (p.889)

I believe that the study presented does have such an internal logic, and the data presented and analysed, while not the only data that could have been used, and not the only analysis methods, are appropriate, and have been collected with an eye to the whole tapestry. It is now to the readers to decide for themselves whether the tapestry is sufficiently thoughtfully constructed and, to their eye, presents a pleasing picture.

I do not contend, nor have I ever suggested, that all of the discussions, let alone all of the messages, on NURSENET or any other discussion forum, can be seen as providing evidence of reflection. It is clearly evident from even a cursory examination of a selection of messages to the list that only a minority of the messages conforms to the elements of the model developed in the study and can be suggested to provide evidence of reflection. While this reflection provides, I believe, an important part of the discussions on the list, for many list members, this may not be the most important function of the list.

I do not claim that my framework is the only one that can be used or developed in this area – nor that it is necessarily going to be applicable to other listserv forums, let alone other forms of CMC. It is to myself in future research and to others to test these areas/issues. What I have undertaken in this study is similar to Waskul and Douglass' (1997) study of another form of CMC. In similar manner, I have identified

...characteristics of the form...to ground such characteristics in the experiences of participants, and along the way to provide relevant insights toward the construction of a coherent analytical framework that helps to integrate other work in the field. (p.377)

The end? No, only the formation of a new path back into the swampy lowlands of real-life nursing practice, wherein nurses can explore the little narratives that describe their practice in the many concurrent lives of nurses around the world. Back, as Walker (1995) describes it, to the most overt form of the late-night-early-morning-all-day conversations of nurses as they tell their stories and create and explore their practice, theories and knowledge.

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